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A QUESTION OF EDUCATION.

AN American seller of rubber shoes urging an English buyer to deal with him was met by the response. "You say our people wear heavy, clumsy, leather shoes, and that it is our duty to educate them to sensible shoes, and American rubbers? Now that is not our belief. *You* educate them to wear shoes that your rubbers are adapted for, and *we* will buy all that we can dispose of. We have no prejudice against American rubbers. On the contrary we realize that they are perhaps the best in the world, but they are made to fit American shoes. Now make a shoe that is patterned after our lasts, or else educate our people to the advantages of your shapes."

AMERICAN MACKINTOSHES FOR EUROPE.

A GENTLEMAN who for years has been a substantial factor in the rubber trade of the United States was recently describing to the editor of THE INDIA RUBBER WORLD his experience in introducing American mackintoshes into Canada. This of course was years ago before the present well-equipped Canadian mills were doing double texture work. His first trip there with samples such as would suit the market in the States was a flat failure. Realizing this he spent a few weeks in carefully studying the situation. As a result he sent to England, imported English linings, made up his goods in just the style that his new market called for, and did a very large business there for years. Applying this lesson to the present times he said: "There are but two reasons why we are not at the present time selling mackintoshes in England and on the Continent. The first is that we do not study the styles that are wanted for outside markets with sufficient care, and the second is that our cloth manufacturers do not give us the proper cloths. The vulcanized mackintosh of American make is superior to any in the world as far as the rubber coating and the cure go. Now let American mills give us the cloth that we should have, and we can sell the mackintosh right in the home of the macintosh."

PRICES IN MECHANICALS SHOULD ADVANCE.

NO class of men in the rubber business are such astute manipulators and compounders of rubber as those who make mechanical goods. This is due to the fact that while they know all about the regular grades of rubber there are many kinds that none others could use and yet that fit into some parts of their business excellently. Then comes the temptation therefore when crude rubber advances to substitute some of those less valuable gums, or to cunningly introduce various adulterants that the goods may be still made at a profit. Such a course is, however, shortsighted in the extreme. The proper move for the manufacturer when confronted by a constantly rising market is to put his price up accordingly, *no matter what his neighbor does.* For several years past prices have been

dropped lower and lower in mechanical goods, and in many lines it would seem as if bottom must be reached. No one of all the wise business men who make mechanicals will deny this. Hence they study the crude rubber statistics with alarm, for the figures show that fine Pará has been 18 per cent. higher from July to November this year than it has been during the same period for years. There would seem to be but one way out of this difficulty, and that way is a general raise in price all along the line.

THE GOVERNMENT'S GOLD BALANCE.

GOOD sense and the lack of it are extremes which nowhere work wider limits than when applied to money matters. This was brought to mind lately, when a bank in New York city was found to have been robbed of $354,000. Its officials, instead of taking such action as might have precipitated a "run," involving suspension, a panic, and widespread ruin, managed so well that business proceeded just as if no loss had occurred. The federal treasury seems to be less fortunate in the character of its guardians. Despite all the wealth of the country, and the long-continued high credit of the government, it is a puzzle at Washington just now to keep enough money together to protect our reputation in foreign financial circles. The bank lost a large share of the capital upon which its business had been based, but its credit did not suffer in consequence. The loss to the treasury of $50,000,000 in gold, under such a policy as has been pursued at Washington in recent years, would bring all business to a stop until people could see how much the money in their pockets was worth.

No intelligent financial student is surprised, when the government brings into existence money of different kinds, some of which is intrinsically better, or rests on a better basis, than the other, that the best should be the hardest to retain in the country, and in our case gold is the money in which we must pay our foreign balances. But it is not so clear to everybody why we should have to be sending away coin when our exports of merchandise have so largely exceeded our imports for years past. Is not the "balance of trade" in favor of the United States? That is altogether a matter of bookkeeping. If we include, on the one hand, only the declared value of goods brought into the country, and on the other the value of our products exported to pay for them, the balance has been in our favor.

But the farm and other products that go out of the United States have a much heavier debt to pay than merely our bills for imports. There are other heavy items which never figure in custom house returns, insurance, commissions, and other charges on imports; interest and other forms of return on investments here of foreign capital; large credits expended by our citizens in travel abroad; and, largest of all, the item of ocean freights on both our imports and our exports. Nearly all of the latter goes into the pockets of foreign ship-owners, and for every dollar of it two bushels of wheat or their equivalent in other products must leave America.

If foreigners wish to withdraw from the country the profits of their investments in our railroads, mines, or factories, it is their right; so with Americans who wish to spend some of their wealth in seeing other lands. But it is not right—because it is poor national economy—for us to pour into the hands of foreign ship-owners what amounts practically to the whole of our exports of wheat. Could this be paid to American ship-owners it would make an immense difference in our "balance of trade" and remove all necessity for the export of gold under ordinary circumstances. The other advantages of having more ships of our own are too many to notice here.

It is not too much to say that the same amount of mind fatigue that has been devoted at Washington to considering the proper limits of the treasury gold reserve and to the authority under the law for borrowing gold, might, if properly directed, have given us an earnest of a government policy which would have extended our shipping until already a smaller amount would need to be charged against our exports for freights. Such a positive course would be an inspiration to that element in our population who continually keep their eyes on Washington as their pillar of cloud by day and of fire by night. But the opposite course of vacillating has filled people with alarm and kept business at a standstill until something should happen. Here appears another case for the comparison of good sense and the lack of it. And we have pointed out only one of many grounds for a broad policy of statesmanship, which would have the effect of drawing the minds of the people from the contemplation of their paltry gold balance in the treasury, as if that were the sum and substance of our national life.

THE RUBBER-MILL AT SETAUKET.

THE North American Rubber Co. were incorporated at Albany, N. Y., on November 30, to manufacture India-rubber goods at Setauket, Suffolk county. The amount of capital named is $300,000, and the directors are Benjamin F. Jayne, of Brooklyn; Joseph W. Elberson, of Setauket; and Herbert F. Barnes, Acton C. Bassett and Henry C. Beadleston, of New York city. No election under the charter had been held when THE INDIA RUBBER WORLD asked for information. It was stated that the new company, which succeeds the Brookhaven Rubber Co., will manufacture rubber clothing, and that it is prepared to accept orders for making bicycle tires and other mechanical goods. For the present their offices are at No. 36 Park place, New York.

The Setauket plant has come into considerable prominence of late through sensational newspaper reports of the destruction of shoe lasts of great value by the United States Rubber Co. In behalf of the latter corporation it is stated that the grade of shoes manufactured at Setauket was such as the United States Rubber Co. desired to retire from the market. They therefore destroyed the appliances for shoe-making of the Brookhaven Rubber Co. and then turned over the remaining property to the stockholders of that company, thus terminating all connection between them and the United States Rubber Co. It goes without saying that the property destroyed must have been old or in bad condition, or such shrewd business men as the managers of the big rubber company would hardly have destroyed it.

CHAPTERS IN THE HISTORY OF RECLAIMED RUBBER.

The Defense of the Raymond Rubber Co.—II.

PROFESSOR HENRY B. CORNWALL'S deposition, on the part of the defense in the suit of the Chemical Rubber Co. *v.* the Raymond Rubber Co., *et al*,* is devoted to an analysis and comparison of the plaintiffs' several patents at issue, of the defendants' processes, and of the processes described in several prior patents introduced in evidence by the defense. The deponent has been professor of analytical chemistry at Princeton College since 1874, before which he was an assistant in chemistry at Columbia College for four years, after having been graduated from that institution and studying chemistry abroad for two years. He began by describing the plaintiffs' six patents, substantially as follows:

Patent of N. C. Mitchell, No. 300,720—1884: The inventor defines his object to be the removal of cotton or wool fiber from rubber waste. Referring to previous inventions in the art, he says that the exceedingly dilute acid of Hayward's patent [No. 40,407—1863] could have no appreciable effect in destroying fibers, while sulphuric acid of the strength and temperature suggested in Faure's patent [French No. 91,665—1871] would act injuriously upon rubber. The older processes, he says, have been "so far from practical that the waste is generally considered value less." His own invention, he says, rests upon the discovery that rubber in the waste will resist the action of strong sulphuric or muriatic acid, at a high temperature, while the textile material will be corroded by it. In carrying it out, he ground up the waste, put it into a tank which had first been partially filled with acid, covered the tank, and introduced steam (by means of a coil, or otherwise) at a pressure of 50 to 75 pounds, to impart a high degree of heat to the acid, this treatment lasting from one to five hours. The resulting mass was washed to carry off the acid and impurities, and dried and rolled to prepare it for market. He used acid of the strength of 66° B., at the rate of 300 to 500 pounds of sulphuric acid or 400 to 750 pounds of muriatic acid to 1000 pounds of waste, the proportions varying with the character of the fiber.

Commenting on this, witness said that Faure suggested acid of a strength of 53° to 58° B., cold or at a temperature of 60° to 80°C. He considered that the whole discovery claimed by Mitchell was that an acid should be employed which, if not heated above 80° C., would injure the rubber in the waste, while it could safely be used at a high temperature. Witness said that he had subjected rubber waste to the action of sulphuric acid of 66° B. for one hour at a temperature of 100 C., and found the rubber affected so injuriously as to be valueless. In other tests he used acid of a strength of 53° B., both at an ordinary temperature for a week and at 65° for one hour, and in each case, while all the fiber was eliminated, the rubber was uninjured, but in a fit state for use. Witness therefore considered the alleged discovery of the Mitchell patent to be based on an error in fact.

Patent of N. C. Mitchell, No. 249,970—1881: The invention herein claimed is an improvement* upon the process in the preceding patent by the injection of live steam into the tank, for the purpose of bringing the acid with the waste to every portion of the mass under treatment. Interrogated, witness said that sulphuric acid and muriatic acid were similar in their effect upon cotton and wool fibers, and that this fact had long been known to chemists.

Patent of Augustus O. Bourn, No. 292,891—1884: The inventor says that his object under this patent is to effect an entire separation of fibrous material from rubber waste, whereas, to the best of his knowledge, previous processes had failed to remove all the fiber, and the rubber reclaimed by them could be used only in compounds for the manufacture of such goods as would admit of the presence of fibrous matter. His invention, he says, consists in boiling the waste in such acid solutions as will liquefy the fiber, or make it soluble in water, leaving the rubber practically intact. He refers to the Hayward patent [No. 40,407—1863] and to the Faure patent [French No. 91,665—1871], the effect of the first being to weaken the fiber without eliminating it, and of the second, by strong solutions, to practically carbonize the fiber. Mr. Bourn clearly asserts himself to be the first to discover a practicable method of eliminating fiber from rubber waste, instead of allowing more or less of it to remain, in an altered state, in the partially-reclaimed rubber. He does not claim the discovery that sulphuric acid will act as a solvent for cotton fiber, but that he is the first to employ acid solutions to eliminate cotton fiber from rubber waste in a liquefied form. The inventor describes his use of a solution containing 3 or 4 per cent. of commercial sulphuric acid, and boiling from fifteen to twenty-four hours. Witness considers that he contemplated the use only of what may be called "decidedly dilute solutions."

Patent of C. J. McDermott, No. 311,135—1885: This inventor states that, prior to his improvement of the art, it had been customary to grind up together the fiber and rubber contained in waste, using the resultant material in admixture with fresh rubber, the fiber being weakened (and therefore more easily ground) by treatment with dilute sulphuric acid, but in this process the fiber was neither removed nor brought into a condition where it would be removed by washing. Evidently this is in reference to the Hayward patent. Again, he refers to the Faure process, in which "the great strength of acid is liable

* The answer of the defendants in this case was printed in THE INDIA RUBBER WORLD of October 15 and the first instalment of proof offered in their behalf in the issue of November 10.—THE EDITOR.

* To explain how a patent may happen to cover an improvement upon the details of a patent of later date, it may be mentioned here that the Mitchell patent numbered 300,720 was applied for on May 5, 1881, and the one numbered 249,970 on May 19, 1881. The latter application was acted upon in the patent office, however, three years before that covering the earlier invention.—THE EDITOR.

to burn or eat up the rubber, and besides renders the washing and neutralization difficult. Faure's process requires the soaking of the scrap for from a day to a week, while my process requires only a small fraction of a day." The processes for the application of Mr. McDermott's invention, as stated by him, are: (1) For unvulcanized waste containing cotton fiber, a mixture of sulphuric acid (12° B.) and black oxide of manganese is placed in a tub, followed by the waste, and on top of this a mixture of bichromate of potash, muriatic acid, and salt; steam is admitted at a pressure of 80 to 100 pounds and the mass boiled forty-five minutes, with one interval for stirring; the chemicals are washed out with cold water, the stock again boiled in a weak solution of pearlash, and the resultant mass washed and rolled into sheets. (2) For vulcanized scrap, sulphuric acid and sal-ammoniac are placed in the tub, covered with waste, and followed by manganese oxide, after which more waste, spread with salt, and still more waste, and lastly muriatic acid; the tub is then covered, steam turned on, and the mass boiled forty minutes. (3) For vulcanized hose and belting, sulphuric acid, lime, and carbolic acid are mixed at the bottom of the tub before the waste is put in; the whole is boiled by steam for fifty minutes. (4) Sulphuric acid (of a density of 32° B.) and salt are first placed in the tub, after which the waste is put in, followed by manganese, pearlash, and caustic potash, the boiling to last fifty minutes.

Witness asserted that after a careful reading of McDermott's specification and claims he was unable to determine what the latter claimed to have originated. It was evident to the mind of the witness that the inventor was ignorant of the chemical reactions upon each other of the substances described. In the process No. 4 the reaction of such a mixture as was decribed would be somewhat alkaline, and, if an alkaline effect were intended, it might more easily and more cheaply be produced by using either caustic potash or pearlash. So in No. 3, the combination of lime with sulphuric acid is in such proportions that the actual effect would be the same as that due to lime alone.

The witness was asked to state whether the process of reclaiming rubber which he had seen employed by the Raymond Rubber Co. was the same or different from those specifically described in the above-mentioned patents of the plaintiffs.

He said that the process employed began with grinding the waste, which, though not described in the Mitchell patents, was an ordinary expedient in treating rubber scrap and might be considered as implied. The ground rubber was placed in a lead-lined tank containing a sulphuric-acid solution of a density of 28° to 30° B.; the tank was provided with steam-pipes running down its sides and along its bottom, the portions at the bottom being perforated; the chemical treatment lasted for from 2½ to four hours, after which the scrap was washed to free it of acid and dirt. Understanding Mitchell's claims to relate to the use of very strong acid, witness was of the opinion that de fendants did not use the process described in the Mitchell patent of 1884. Coming to the Bourn patent, which specified clearly an acid solution of "about 3 to 4 per cent.," witness did not think that the defendants could be said to use the same process as that described by Bourn. As for the McDermott patent of 1885, the question turned upon whether the use by the defendants of a sulphuric-acid solu- of 28° to 32° B. could be considered to be within the specific limitation of the claims to a solution of about 12° in strength. The inventor did suggest the use of an acid having a density of 32° B., but that was only for a particular mode involving the use of other chemicals which would neutralize the sulphuric acid. The Mitchell patent of 1881 contains nothing to teach the use of an acid solution so weak as that used by the Raymond Rubber Co. They do, however, use live steam, but they do not depend upon this to stir the boiling mass, as specified in the Mitchell patent, this being accomplished by the use of wooden paddles. Another patent involved [McDermott, No. 262,079—1882] relates to the use of live steam in connection with sulphuric acid of about 12° B., and the question here arose with regard to the use by the defendants of an acid solution considerably stronger.

Counsel for defendants having placed in evidence copies of certain patents of dates anterior to those of the plaintiffs upon which this suit is based, witness was asked whether he found in them a description of any process for reclaiming rubber similar to those described in the several plaintiffs' patents.

Witness said that he did not find in the printed British provisional specification of C. A. Burghardt (1878) a description of the discovery announced in Mitchell's patent No. 300,720, viz.: that acids so strong that when cold they would injure the rubber can be used to remove the fiber without injuring the rubber by raising them to a high temperature. If the claims of this patent to Mitchell are understood to refer only to the use of acids as strong as those he mentions, witness did not find his invention disclosed by Burghardt. But if it is to be properly understood as describing and claiming the process of treating rubber scrap with a strength, for instance, such as the defendants use, witness does find in this publication a complete disclosure of the invention announced and claimed by Mitchell. Witness was of a similar opinion with regard to the McDermott patent No. 311,135. Again, the Burghardt publication relates to the use of muriatic acid for the destruction of fiber in rubber waste, and Bourn's patent No. 292,891 mentions first "solutions of acid" and then more specifically sulphuric acid. But taking into consideration the fact that muriatic and sulphuric acids were well-recognized equivalents in their action upon cotton fiber, witness regards the Burghardt publication as a full disclosure, in material respects of the invention described and claimed by Bourn.

Witness had experimented in his laboratory with rubber scrap by the methods described in the two patents granted to Hiram L. Hall in 1858 and placed in evidence by defendants' counsel. He considered the first of these patents to be a substantial anticipation and disclosure of the inventions contained in all of the plaintiffs' patents, at least so far as the defendants are charged with infringing them. Witness is of the opinion that the Faure patent involves a

clear disclosure of the process used by the defendants, for he does not think that the further dilution of the acid is a material variation from Faure's process. Further, in the light of Faure's process, and on the narrow construction which he believes the claims of the Mitchell and Bourn patents were intended to bear, witness thinks that the claims are entirely lacking in substantial novelty, because the distinction upon which it is sought to base them he has found lacking in basis of fact. Witness also had experimented with the processes described in the patents of Hayward and Bourn, with the result of being convinced that the two processes were substantially identical.

After recounting numerous experiences in his laboratory with acid solutions of varying strength, as suggested in different patents, witness asserted that in no case did he find it necessary to inject live steam into the mixtures of acid and rubber scrap in order to effect the decomposition and removal of either woolen or cotton fiber.

BRIEF ABSTRACTS OF RECENT RUBBER PATENTS.

AMONG recent patents issued by the United States patent office, embodying applications of India-rubber or Guttapercha to a greater or less extent, have been the following. It is not practicable here to do more than to note the use of rubber in each case, with sufficient detail to enable those who are interested to decide whether or not to look into any particular patent more fully:

TIRES.

No. 527,097.—Pneumatic Tire. Ernest W. Young, Michigan City, Ind.

The combination of a casing or sheath, an air-tube, a series of separate superposed apertured or perforated diaphragms or patching-plies therein, and an air-valve passing through the casing and air-tube,

No. 527,130.—Pneumatic Tire. Jules E. Senechal, Paris, France.

A pneumatic tire consisting of a series of superposed chambers polygonal in cross section and in open communication with each other, the tire having a flat tread and a metal strip interposed between the outer chamber and the tread.

No. 527,781.—Flexible Tire and Rim for Wheels. Sterling Elliott, Newton, Mass., assignor to the Pope Manufacturing Company, Portland, Me., and Hartford, Conn.

In a wheel the combination of a rim, a flexible cover and an inner inflatable tube, the cover being opened circumferentially on its inner side, and having circumferentially inextensible bands inserted or engaged with its edges the bands being fitted and supported on the rim, and the rim having a medial band or ridge between the inextensible bands of the cover, the medial band or ridge having its outer periphery flush with the outer periphery of the bands of the cover or sheath so that a substantially continuous bed is formed of the inner tube, and fastening devices each comprising a rod mounted in a groove in the rim and held from outward movement by the ridge or band of the rim, and each of the fastening devices also comprising an engaging part or parts mounted on or forming part of the rod and constructed to prevent the lateral disengagement of one or both of the edges of the cover and to be moved out of engagement with the edge or edges to enable the tire to be displaced or removed.

No. 527,782.—Flexible-Tired Wheel. Sterling Elliott, Newton, Mass., assignor to the Pope Manufacturing Company, Portland, Me., and Hartford, Conn.

In a wheel the combination of a rim, a flexible cover and an inner inflatable tube, the cover being opened circumferentially, and circumferentially inextensible bands of metal or similar material attached to and inclosing the edges of the cover, the bands having inner lips forced over upon the inclosed edges and having outer parts adapted to engage with the fastening devices, and the bands being supported upon the rim, and fastening devices comprising pivoted latches mounted on the rim and adapted in one position to engage with the metal band or bands to hold the edge or edges of the cover from moving laterally off the rim and to be moved out of position to permit the separation of the parts.

No. 527,820.—Rubber Tire. John C. Tallman, Bridgeport, Conn.

A rubber tire comprising two parts, a hollow felly having its periphery provided with a series of parallel circumferential grooves and ribs on each side of the grooves, having their tops inclined towards the sides of the felly, and a rubber tire having side pillars adapted to fit in the two ouside grooves, and a central pillar engaged in the central groove, the side pillars being recessed to come within the side ribs and air spaces between the side pillars and the central pillar, the outer surface of the tire being designed to contact directly with the ground.

No 528,056.—Method of Making Joints in Pneumatic Tires. Charles E. W. Woodward, Chicopee Falls, Mass., assignor to the Overman Wheel Company, same place, and Hartford, Conn.

A method of forming joints in pneumatic cycle tires or other hollow articles formed of or containing rubber, consisting in placing a hollow tape core furnished upon its periphery with a transfer strip, within the ends to be joined, which are secured to the transfer strip, then subjecting the article to internal pressure in a mold which coöperates with the core to place the material between them under mechanical compression, then forming an opening in the tire, and reducing the core by unwinding it and removing it through the opening, leaving the transfer strip covering the joint within the tire.

No. 528,213.—Pneumatic Tire. George F. Stillman, Syracuse, N. Y.

In combination with a felly provided with a hole, a band provided with a hole elongated laterally; a sleeve passing through the holes, and provided at its outer end with a flange and at its inner end with external screw threads; a tire provided with a filling tube to fit within the sleeve; a packing encircling the sleeve at its inner end; and a nut screwing upon the sleeves and serving to seat and securely hold the sleeve and band in place, and also to press the packing against the inner face of the rim to prevent the entrance of water around the sleeve.

No. 528,411. Wheel-rim for Pneumatic Tires. Thomas Birch, Leeds, England.

In a wheel, the combination, with an air tube, the two angle-shaped rings, and the canvas covering inclosing the two rings and securing them to the air tube, of a detachable portion consisting of two rings provided with projections on their outer sides, one ring extending under the first two rings and having the wheel spokes secured to it; and the coupling clips hinged to the ring and engaging with the projections.

No. 528,451.—Pneumatic Tire and Wheel-rim. Pardon W. Tillinghast, Providence, R. I., assignor to the Tillinghast Manufacturing Company, same place and Jersey City, N. J.

The combination of a wheel-rim having a pair of annular grooves substantially semi-circular in cross section, an annular band secured to the periphery of the wheel-rim, and having its edges provided with annular beads which overhang the annular grooves in the wheel-rim, and a slitted or divided tire having the edges of the slit or division molded and vulcanized with annular stretchable beads having rounded outer surfaces to fit the grooves and engaged with the annular beads of the annular band.

BOOTS AND SHOES.

No. 527,086.—Overshoe-securer. Orville R. Tower, North Greenfield, Wis.

An overshoe securer, consisting of the combination with the heel of an overshoe or rubber of a supporting plate doubled upon itself over the heel, a hinge loop or loops attached to the outer portion of the plate, retaining arms or bars hinged to the loop or loops and adapted to engage the sides of the heel, and a downward projecting lip rigidly attached to the retaining arms, and adapted to serve as a lever for engaging or disengaging the retaining arms.

No. 527,717.—Wool or Felt Boot. John Pendergast, Hastings, Mich.

The combination with a wool or felt boot provided with leather reinforcing flaps and to which are attached flexible straps provided at the free end with a plate having a hinged spring-tongue at its lower end, of a removable waterproof overshoe provided with a flexible strap or straps having a slotted plate at the free end adapted to engage the juxtaposed spring-tongue appertaining to the boot.

No. 528,473.—Lumberman's Rubber and Stocking. Moses D. Girard, Pentwater, Mich.

In a lumberman's rubber, the combination with a foot portion or shoe having an internal flap, the lower edge of which is attached to the interior of the shoe at a point below the upper edge of the latter, its unattached portion lying close to the inner surface of the shoe and extending some distance above the top thereof of a combined leggin and stocking foot, the stocking foot being secured to the interior of the leggin at a point above the bottom of the latter and the lower edge of the leggin lying between the top of the shoe and the flap, and a fastening for drawing the shoe top about the leggin.

DRUGGISTS' SUNDRIES.

No. 527,681.—Syringe. Albert L. Gray, Tarkio, Mo.

In a syringe, the combination, of a block having a pad on its inner side and induction and eduction pipes passing therethrough, together with a tube having apertures therein and a recess in its upper side adjoining the pad, and a tube supported centrally within the tube and having a spraying nozzle which extends beyond the end of the latter, the recess opening into the tube.

No. 527,974.—Heel-valve for Atomizers. James Hardman, Jr., Belleville, N. J.

A valve for atomizers, comprising therein a sheet metal casing, having a face provided with a perforation, a chamber, a neck having a flange, and a flexible disk-valve in said chamber.

DENTAL RUBBER.

No. 527,818.—Rubber-dental-plate Blank. Joseph Spyer, Mexico, Mexico.

A soft rubber blank adapted for use in making artificial dentures, which soft rubber blank is of the size and shape of the denture and is adapted to be shaped in any suitable manner and vulcanized.

MECHANICAL GOODS.

No. 528,144.—Combined Fountain and Sprinkler. Jason R. Cadwell, Chicago, Ill.

A sprinkler having a series of lateral jetting orifices arranged in a row longitudinally of the sprinkler and delivering converging streams, the outer surface of the sprinkler at opposite sides of the orifices being cut away so as to widen the jets in a direction across the sprinkler.

No. 528,431.—Nozzle. Frederick W. Herbkesmann, St. Louis, Mo.

In a nozzle, the combination of a cylindrical body, a concave horizontal bottom below it, and a horizontal flange on the body between which and the edge of the bottom is a water outlet slot, the flange having a horizontal surface on the under side and projecting horizontally beyond the edge of the concave bottom.

TRADE-MARKS.

No. 25,310.—Rubber-coated Skirt-facing. I. B. Kleinart Rubber Company, New York, N. Y. Filed Sept. 7, 1894.

Essential feature.—The representation of a telegram comprising a printed form having the word "Telegram" in large letters at the top, followed by lines of smaller type, and these by a written message. Used since August 15, 1894.

No. 25,311.—Rubber-coated Skirt-facing. I. B. Kleinert Rubber Company, New York, N. Y. Filed Sept. 7, 1894.

Essential feature.—The word "Telegram." Used since August 15, 1894.

MISCELLANEOUS.

No. 527,049.—Moistening Device. Thomas J. Close, Philadelphia, Pa.

In a device for moistening stamps, envelopes and other surfaces, a tube of impervious material with one or more flexible sides, the tube having an opening for the introduction of water, a cap or plug to close the opening, an opening at its outer end, wicking material extending through the outer opening and into the tube, in combination with the roller, placed in proximity to the wicking material.

No. 528,308.—Method of and Apparatus for Making Rubber Type. Louis K. Scotford, Chicago, Ill.

An apparatus for making rubber type comprising a chase, a recessed plate, and spacing bars adapted to fit within the side walls of recessed plate, the spacing bars being provided with screw holes, and both the chase and recessed plate being provided screw holes opposite those in the spacing bars, whereby the latter may be secured either to the chase or to the recessed plate.

No. 528,317.—Manicure Instrument. Charles J. Bailey, Newton, Mass.

As an improved article of manufacture, a manicure instrument, consisting essentially of a block of flexible rubber having one end inclined and rounded longitudinally and transversely, the end also being corrugated or ribbed longitudinally.

THE CHIEF KNEW GOOD CIDER.

IT may not have occurred to most readers of THE INDIA RUBBER WORLD, but it is none the less true that the greater part of the India-rubber supply is gathered by people who have no use for money and who go through life without handling any. This is true not only of the tree-tappers, but generally of the rubber-collectors,—*i. e.*, those who carry the gum to the first market. Even the steamer-loads of rubber that come down the Amazon river to Pará are paid for in great part with supplies from the stores.

In Africa, as elsewhere, a knowledge of the laws of barter is the first requisite in the rubber buyer. While India-rubber production on a large scale is of recent date there, the wits of the natives have been sharpened by contact with European traders in other commodities until the latter are far from having everything their own way.

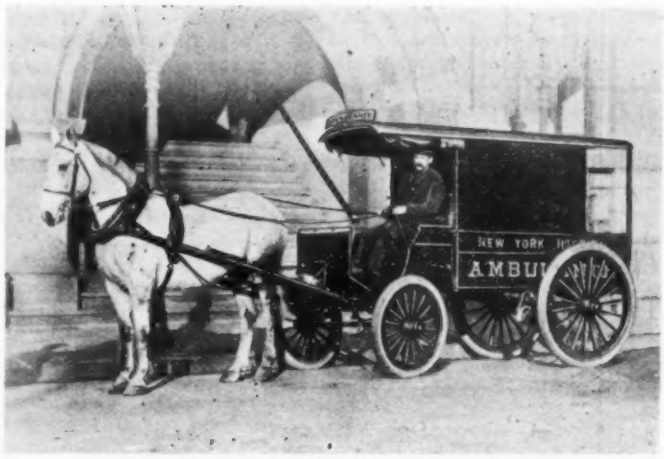
Mr. Lethbridge Banbury's book on Sierre Leone contains an amusing story of a native chief who arrived at a coast settlement with several canoes laden with rubber and other produce, which he proposed to barter with one of the white traders for European goods. The latter, soon discovering that he had a very sharp bargainer to deal with, proposed a rest, before completing the trade. Rum was sent to the men in the canoes, while the chief was invited into the private office for more ceremonial hospitality. The trader ordered his clerk to bring a bottle which was uncorked with an impressive explosion and emptied into glasses as something fit for a connoisseur.

"Pretty good champagne, this. Eh, chief?" remarked the host, watching the effect upon the other after they had clinked glasses.

"Not bad cider," was the bluff response of the black man, who probably had been subjected to every form of beverage by traders anxious to take advantage of him, and had learned to know them all.

RUBBER TIRES FOR AMBULANCES.

TWO rubber-tired ambulances have been in constant use for several weeks past at the New York Hospital—one equipped with pneumatic and the other with solid tires. Ever since rubber tires first promised to come into successful use on vehicles the superintendent of the hospital, Mr. George P. Ludlam, has kept in mind the desirability of such appendages for ambulance-wheels. He had found nothing satisfactory in this line, however, when he first saw an advertisement of the Dunlop tires for vehicles, and he at once called upon the firm manufacturing them. The result was that the firm equipped an ambulance with pneumatic tires, which collapsed almost the first time the vehicle was sent out on a call. The tire company did not stop with this, however, but sent their superintendent to England, and on his return they put on new rims and tires 3 inches in diameter that have since been in regular service without a puncture or deflation. The weight of the ambulance alone is 1850 pounds, besides which it usually carries the weight of several persons. It is, therefore, the heaviest pneumatic-tired vehicle in the world. The other ambulance referred to is furnished with solid tires, held in steel clamps, as in the case of carriage-wheels in use in New York.



THE HEAVIEST PNEUMATIC-TIRED VEHICLE IN THE WORLD

"While I am not yet ready to express an opinion as between the pneumatic and the solid tire," said Superintendent Ludlam to THE INDIA RUBBER WORLD, "I can declare myself decidedly in favor of rubber. The increased comfort to the injured or sick person who has to be carried in an ambulance over our rough streets is often very great. There is an advantage, too, in the case of nervous persons, in the lessened noise due to the use of rubber. Besides, the rumbling of ambulance wheels on the hospital premises has been lessened by the rubber tires, which is a relief to everybody in the institution. There is still another important advantage—with rubber tires the weight of the ambulances can be reduced 400 pounds or more. We have made our ambulances very heavy on purpose to give them stability and to reduce jolting, but as the rubber tires will offset the ill effects of jolting, we can spare a large part of the weight of the vehicles, much to the relief of the horses.

"So far, we have met with drawbacks in the use of both kinds of tires. The pneumatic tires collapsed almost the first time they were put to practical use, though I must say that for several weeks now we have had no repetition of the trouble. The trouble with the solid tires, on the other hand, has been that they are liable at any moment to be pulled from the channel or clamp holding them to the wheel rim. We are obliged to keep in our stable a machine for replacing the rubber—an operation of frequent necessity. But in the case of both styles of tires I feel that the drawbacks can be remedied. Which form we shall adopt in the end it is impossible to say, but that we shall continue the use of rubber is certain."

There are said to be about fifty ambulances in use in New York city. The number in the rest of the country has never been estimated. In England the ambulance does not form a part of the equipment of a hospital, as here.

AN AMERICAN IN THE KONGO RUBBER TRADE.

THE rubber trade on the Upper Kongo is showing a steady advance. Fortunately the development of this important item in the commerce of the new state was not begun until the value of intelligent methods was realized. Thus there is hope that the best rubber-bearing area in the state will not be speedily ruined, as has happened in so many other new districts. Besides, efforts are being made to produce the best possible grades of rubber in order to command good prices for the Kongo product.

An American is now doing some good work in opening up the rubber trade in the interior of the Kongo state—Mr. Warren C. Unckles, of the New York family of that name, who arrived at Boma on July 2, 1892, and at once proceeded up the Kongo river to his new field of work. Mr. Unckles has had much experience in rubber and coffee in Costa Rica, and he is under contract with the Société Anonyme Belge pour le Commerce du Haut Congo—a Belgian enterprise—to develop the rubber trade and find good locations for coffee plantations in the extensive territory covered by their concessions from the state. He has thus far established twelve posts or camps for collecting rubber, in a tract watered by the Sankuru, Lubudi, and Lubéfu rivers, in the neighborhood of their union before flowing into the great Kassai, a southern tributary of the Kongo. The principal settlement is at Mukikamu, latitude 4° 3′ S., and longitude 21° 30′ E Mr. Unckles took with him to this remote section ten experienced Costa Rican and Nicaraguan rubber gatherers, with a view to teaching the African natives the best methods of tapping the rubber vines and coagulating the sap. The Kassai has been named lately in official reports as one of the three important rubber-producing branches of the Kongo, which is due probably to the enterprise of the above-named company.

Mr. Unckles has written to the editor of THE INDIA RUBBER WORLD a letter which was just three months on the way from Mukikamu to New York, but it is without details in reference to his work in exploiting rubber, as the company are not yet prepared to have the results of this work made known. But with respect to the resources, population and climate of the country Mr. Unckles writes:

"I find the country thickly populated with peaceable people, prolific in its products and resources, and remarkably well adapted to Anglo-Saxon immigration. The climate here is equal to that of the interior of Central America and, to those of experience in tropical life and who will exercise due care healthy and free of danger."

A CURIOSITY IN RUBBERS.

WILLIAM LINCOLN SAGE, of Boston (may his shadow never be less), is the possessor of a curiosity that any collector of rubber curios would like to secure. It is a pair of ancient rubber shoes that for years lay on a shelf in a little country store far down on Cape Cod. The progressive owner of the store, after exhibiting those goods for half a century, concluded to close them out and stock up afresh. He therefore sold the shoes to Mr. Sage for forty cents. We give a reproduction of the stamp which appears on the soles, one that few except the very oldest of the old rubber-men will recollect.

THE FRUIT OF INDIA-RUBBER VINES.

MANY of the India-rubber vines, or creepers, bear edible fruits, and this is true especially of the *Landolphia* family of Africa. Some interesting facts in this connection are contained in a recent book by Rose Monteiro on Delagoa Bay, the southern limit of the Portuguese province of Mozambique. The *Landolphia Monteiro*, she writes, has a bright yellow fruit about the size of a small orange, sharp and refreshing to the taste, but the white sticky juice that oozes out of the rind, and which it is almost impossible to prevent touching with the lips, is most unpleasant. This creeper bears very large quantities of flowers, growing in bunches, the petals long and rather fuzzy and inclined to curl and twist.

The Kaffirs are very fond of decorating their heads with certain scarlet flowers found near Delagoa Bay, and stick large bunches of them on the bushes and the tops of trees. Mrs. Monteiro thought at first that this use of the flowers was for decorative purposes, but she soon learned that they were for no such innocent purpose. They were tied to a stick smeared with the milky juice obtained from the rind of the fruit of the India-rubber vine above mentioned, as a bird-lime for different kinds of small birds which abound in that region. The Kaffirs, after trapping the birds in this way, offer them for sale in bunches to be eaten. The *Landolphia Monteiro*, by the way, takes its name from the husband of the writer above quoted—J. J. Monteiro, himself a writer of note on Africa.

In reporting upon the resources of the Uganda, Captain F. J. D. Lugard writes that many varieties of India-rubber plants are found there. One vine, called by the natives "dulemu," bears a fruit spherical in shape, three or four inches in diameter, with a rough skin, like that of a green lemon. Rubber exudes from the green fruit when the skin is wounded, but as the fruit ripens the milk ceases to flow. The ripened fruit is edible.

The late Emin Pasha, who was a physician and a learned naturalist, wrote once from the Monbuttu country—where, by the way, the world can hope to find India-rubber in plenty when many other sources have become exhausted—that "the juice is used in a remarkable way here as an application in the treatment of dry skin diseases. The affected places are painted with it, and it forms an impenetrable layer over the diseased skin."

THE earliest shipment on record of Colombian rubber is that of 31 pounds of liquid gum from Cartagena, which reached England in 1835, being valued at £3 1*s.* 7½*d.* The next year this was followed by 1056 pounds of the liquid, which was set down in the custom-house returns as worth £110. But Thomas Hancock, the distinguished inventor in the rubber line in England, had already imported a considerable amount of liquid gum from other countries, which he had used in experimenting for waterproofing garments. The first that he received came from Guatemala in 1824, being shipped in joints or lengths of cane.

* * *

A WRITER in an English magazine illustrates the conservativeness of custom by asserting that some India-rubber is still imported into England from South America in the form of bottles, this being the shape in which the crude gum was first exported from the Amazon valley.

THE "PROTECTOR" MACKINTOSH CAPE.

WHACKSEY (the foot-pad, who has been following his vistim in the dark) – "B-blest 'f that man's g-got any head!"

CAPTAIN MARMADUKE FLUKERS—"Wonder what that noise was behind me."

—*Judge.*

MAY HELP THE RUBBER TRADE OF BURMA.

A TREATY has been concluded between Great Britain and China, defining the boundary-line between the latter country and Burma, which is now wholly under British control. It is expected that a marked impetus to the overland trade between Burma and China will result. Besides removing duties on most articles crossing the boundary, the treaty will have the effect, it is hoped, of leading to better order in those sections where continual disputes have existed over the respective territorial rights of the two countries. Chinese vessels are to have the same rights as British vessels at Rangoon and up the great Irawadi river, which is navigable for 900 miles in the direction of China. There is already a considerable output of India-rubber from this stream, controlled for the most part by Chinese traders, and if the favorable results expected from the treaty are realized, the India-rubber production is likely to be increased. The exports of this gum from Burma grew from 216,272 pounds in 1879 to 646,352 pounds in 1892. The American consul-general at Calcutta some time ago reported a conversation with a Major Betts, who, while an officer in the Chinese army, explored the large islands of Formosa and Hainan, finding the forests full of untouched *Ficus elastica*. The belief is entertained that in all the semi-explored regions between Burma and the Pacific these trees are to be found, and that with the subjugation of the wild tribes the product will begin to come into market from new territory.

INDIA-RUBBER TRADE OF BELGIUM.

BELGIUM is likely to become a more important factor in the India-rubber trade with the development of the resources of the Kongo country. No less than six important companies exist at Antwerp and Brussels for trading with the new African state, the list including the Anglo-Belgian India-Rubber and Exploring Co., of Antwerp, and the Brussels company whose American rubber-gatherers are mentioned on another page of this paper. The following statement of Belgian imports of India-rubber during 1893 has been prepared for THE INDIA RUBBER WORLD in the office of the ministry of foreign affairs at Brussels:

	Pounds.
From Brazil	28,600
From England	415,604
From France	197,098
From Germany	16,350
From Hamburg	12,041
From Kongo Free State	374,616
From Netherlands	37,646
From United States	44,196
From other countries	18,304
Total	1,144,455

It will be seen from this table that already the Kongo rubber supply is assuming important proportions in the rubber traffic of King Leopold's country.

IMPROVING SIERRA LEONE RUBBERS.

MORE attention is being given to the proper preparation of rubber in the Sierra Leone district, according to the United States consul there, Mr. Robert P. Pooley. Formerly, he writes, the natives were very indifferent as to the mode of manipulating the rubber sap, and without scruple in mixing mud and other impurities with it. To such an extent has this abuse been carried that the principal trading firms have agreed not to buy any rubber unless the balls are cut asunder and thoroughly dried, in order that fraud may more easily be detected. The practice of soaking rubber for the purpose of increasing its weight has become general, but in this the savage has imitated the European. In the opinion of the consul "Manoh twists" (now quoted at Liverpool on a par with coarse Pará) might, under proper treatment, be made to equal the best Pará rubber.

RUBBER FROM THE EAST COAST OF AFRICA.

ZANZIBAR is not exporting nearly as much India-rubber as formerly. Fifteen years ago the annual shipments reached a value of $1,000,000 or more, whereas the figures given out for 1893 do not exceed $126,342. A comparison for two recent years is given below, showing quantities in pounds:

	1891.	1893.
To Europe	476,980	325,500
To United States	14,700	7,140
To other countries	.. ..	840
Total	491,680	333,480

It will be understood that this rubber is not the produce of the island of Zanzibar, but of the Sultan's possessions on the continent of Africa, and of some neighboring East coast settlements. Included in the latter is the territory acquired lately by the Imperial British East Africa Co., who have started in with a great deal of energy to develop the resources of a fertile region, peopled by an industrious class of blacks. The forests abound with India-rubber vines, and already rubber-gathering has been begun. Their rubber exports, through Zanzibar, amounted to 42,844 rupees more last year than in 1892. It is possible, therefore, that the increased yield of rubber in the English dominions will soon more than offset the decline in the other coast districts exporting through Zanzibar.

JAVA RUBBER SLOW TO DIE OUT.

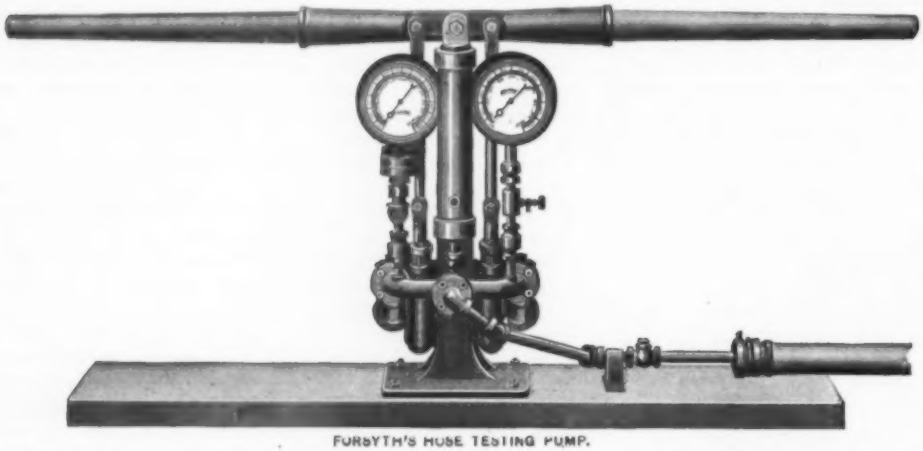
IT is a noteworthy fact that no grade of India-rubber that has ever become known in the markets has become extinct, so to speak. Despite all the fears about exhaustion of the supply, rubber is still gathered to day in every country that has ever produced it in commercial quantities. The output may vary from year to year, but it never ceases entirely in any quarter, which is a fact calculated to encourage manufacturers who have become accustomed to the use of particular grades of rubber, and who might be inconvenienced by their disappearance from the market. This article is suggested by the receipt of some statistics from Java—an island where the India-rubber supply has been "becoming exhausted" longer than we can remember. But the late figures seem to be up to to the average for a great while back. It may be worth while to look over a comparison of the Java exports of India-rubber for several different years:

	Pounds.		Pounds.
In 1833.... *a*	70,336	In 1873.....	200,400
In 1843.... *a*	18 533	In 1883.....	162,267
In 1853. ...	553,467	In 1893.....*a*	69,493
In 1863.....*a*	1,035,200	[*a* Including Madura.]	

While the figures are not so large for 1893 as for some former years, they are a great deal larger than were shown for many other years. The exports from the neighboring island of Madura, included in our table for some of the years, amount to little, but the figures for 1863 evidently include rubber produced elsewhere and brought to Java for export. The Gutta-percha exported from Java and Madura amounted in 1893 to 39,576 pounds and in the year before to 91,392 pounds. In 1891 Java alone shipped 105,006 pounds.

FORSYTH'S HOSE TESTING PUMP.

THE need of proper appliances for quickly testing hose has long been acknowledged. Among those who felt such a need was the Boston Belting Co., who as large manufacturers of varions kinds of hose, wished to have a convenient and simple testing pump. They searched the market for something to meet the requirements, and failing to find it, Mr. James Bennett Forsyth, the general manager, designed the pump shown in the accompanying illustration. It worked so satisfactorily at the Belting Co.'s factories that it was decided to place it upon the market, and, although it has been out but a brief time, it has already scored a success. It is as will be easily seen a double pressure plunger pump. The use of two plungers of large area makes the capacity much greater, and the flow much more steady, than in the single plunger pump of small area. Then, too, the great leverage makes it very easy to operate, and the use of two gages guards against errors. In testing a length of hose it may be filled by the pump, but it is better to let it fill from a tank or street service, and use the pump only for testing. The entire length of time consumed in a test from the beginning of the action of the pump to the release of all pump pressure, should not be over two minutes, as unnecessarily prolonged high pressure will injure the fiber of the duck in which lies the strength of the hose. Hence a pump capable of exerting a pressure of 1000 lbs. and that can easily attain that pressure in the shortest time, is what is needed, and what has been found in the Forsyth pump. It is claimed that it is



FORSYTH'S HOSE TESTING PUMP.

the very best pump ever made for hose testing. Manufactured by the Boston Belting Co., Boston, Mass.

A HINT FOR OUR BRITISH COUSINS.

SAYS the London *India-Rubber Journal:* "Our American cousins can give us many hints, and perhaps one of the least is that introduced by the shoe trade, of giving an extra discount for all orders placed before the actual season commences. This enables manufacturers to ascertain what goods are likely to be wanted, and, during the off season, to make provision for the demands when the public require them; this prevents any scamping of the work, which is often the case when goods are wanted in a rush, and the manufacturers are often sorely tried to keep up with the rapid sale by the retailer. . . . The advantages to the manufacturer are so self evident that we almost refrain from adding any commendation to the scheme, but we feel that if any manufacturers would only give the scheme a trial they would never regret it."

AN ENGLISH VIEW OF RECOVERED RUBBER.

THE recovery of India-rubber from shoes and similar articles forms an extensive branch of industry in the United States. The process consists in the mechanical separation by means of dilute sulphuric acid of the textile materials and the subsequent treatment of the finely ground product with steam under a pressure of six atmospheres. The steaming process seems to effect a devulcanization by oxidation. This assumption is borne out by the fact of the regenerated India-rubber possessing, unlike vulcanized rubber, to some extent the plastic properties of natural caoutchouc, and also by the results of analysis, which showed the presence of a large quantity of sulphates and but little sulphur in combination with the organic matter in the recovered product. The *Journal of the Society of Chemical Industry* says various qualities of this regenerated rubber are met with in commerce. The price of these products, which at best represent but mediocre mixtures approaching closely in composition to the waste material from which they have been obtained, is high—considering the quantity of real caoutchouc contained in them does not exceed 35 or 40 per cent. Their industrial value, therefore, appears doubtful. Three samples in the shape of black sheets, examined by the author, had a specific gravity of from 1.59 to 1.66, and contained lead oxide, calcium sulphate and carbonate varying in quantity from 12.23 to 14.02 per cent., 21.43 to 22.13 per cent., and 10.91 to 18.00 per cent. respectively, together with small quantities of ferric oxide, alumina, silica, and water. The sulphur in combination with caoutchouc amounted to from 0.71 per cent. to 2.03 per cent.—*Engineering* (*London*).

INDIA-RUBBER whips were once made in large numbers, a company in Newark having a license to manufacture them under the Goodyear patents. They were not long in demand, however, after the peculiar use for whips by overseers of southern plantations came to an end.

CURIOSITIES OF THE RUBBER-SHOE TRADE.

SECOND-HAND rubbers may be bought in certain streets on the east side of New York—in the district where stores contain little else than second-hand goods. The thrift of some of the naturalized citizens who live there is shown by their going from house to house in the wealthier parts of town and begging old hats. These are stacked on the sidewalk in their own quarter—with no expense for rent or clerk hire—and retailed for 25 cents each, the profits perhaps laying the foundation for a big store in time. It is not strange that among such a thrifty class second-hand rubbers should find a place. Such shoes undoubtedly are bought as a matter of economy by some persons able to pay for better ones. Above one store in an east-side basement, second-hand rubbers are advertised on the same sign with jewelry, furniture, and clothing. Another sign sometimes met is "Rubbers Repaired." Such an announcement may be seen painted on the sign of one calling himself a "fashionable shoemaker."

PROPOSALS FOR THE CANADIAN PACIFIC CABLE.

THE proposals invited by the Canadian government for the construction and maintenance of a Pacific cable have been opened at Ottawa, but the figures are withheld from publication. Six offers were received, all of them from English cable-manufacturers, as follows: Fowler-Waring Cable Co, The Telegraph Construction and Maintenance Co., Siemens Brothers, W. T. Henley Telegraph Works Co., Francis A. Bowen, and the India-Rubber, Gutta-Percha, and Telegraph Works Co. The Canadian minister of trade and commerce, who presided over the colonial conference at which the cable project took shape, has written this letter:

TO THE EDITOR OF THE INDIA RUBBER WORLD: I have to acknowledge the receipt of your letter inquiring under what circumstances the government will be prepared to announce the figures involved in the proposals received from the cable-manufacturing firms for the laying of the Pacific cable, and at what time such announcement is likely to be made.

To neither of these questions can I give a definite reply. The proposals received from cable-manufacturing firms have first to be fully analyzed and forwarded to each of the Australasian governments for consideration before any further steps can be taken. Yours truly,

MACKENZIE BOWELL.

Ottawa, November 20, 1894.

It is understood, however, that the offers received in every case are below the estimates prepared for the government by Mr. Sanford Fleming, a gentleman of scientific attainments who has done much to keep alive the subject of building a Pacific cable. It was assumed that the cost of the cable and the maintenance for three years would be, in round figures, $10,000,000. The six firms named are among the chief cable-manufacturers and construction-works in the world, and their proposals are said to indicate a thorough study of the problems to be met in laying a Pacific cable.

THE INDIA RUBBER WORLD last month intimated that the British government might be induced by political reasons to aid the cable project with money. The New York *Sun's* foreign correspondent has since written to his paper that the project is undeniably popular in England, that the government will probably submit a bill in its behalf to parliament this winter, and that a large majority in the commons is assured. Meanwhile the general manager of the Canadian Pacific railway, Charles R. Hosmer, has expressed the opinion that the cable would be a success from a commercial standpoint, and that in two years the great bulk of cable business between Great Britain and Australia would be diverted to this route. But the Eastern Extension, Australasia, and China Telegraph Co., Limited, who now have a monopoly of the cable business with the far east, are likely to have something to say on this point. As was asserted at the company's recent annual meeting, whenever a Pacific cable was laid "they were likely to have something to do with it."

Any proposition looking to the construction of a new ocean cable generally brings out something about the exhaustion of the Gutta-percha supply. In this connection the following letter lately received from Singapore may prove of interest:

TO THE EDITOR OF THE INDIA RUBBER WORLD: The total exports of Gutta percha from this market for five years past have been as follows:

In 1889	6,606,720 pounds.
In 1890	9,535,680 pounds.
In 1891	7,013,440 pounds.
In 1892	4,258,240 pounds.
In 1893	5,066,880 pounds.
In 1894 (first six months)	3,566,080 pounds.

The production is governed by the demand. There are large tracts yet unbroken into, and enough to supply all demands for many years to come, we should say. The projected cultivation by private enterprise of Gutta-percha has not proved successful. It is a very expensive cultivation, the tree taking fourteen years to mature.

W. A. WAFFORD & CO.

Singapore, Straits Settlements, October 22, 1894.

Our correspondents write also that the range of prices for first quality gutta this year has been from $160 to $190 (Mexican) per picul of 133⅓ pounds. It is interesting to compare these prices with those of thirty years ago—$30 to $35 per picul. But the increase in prices has not been due to a reduced production. On the contrary, much more is gathered now than when the lower prices prevailed.

Regarding the absence of American firms from the field of ocean-cable construction, THE INDIA RUBBER WORLD has been favored with some facts by Mr. Henry A. Reed, secretary of the Bishop Gutta Percha Co., of New York. It has not yet been possible, he says, to build an ocean cable in America so cheaply as in Europe. At least one-third of the cost of such a cable is in the labor involved in actual construction, after all the materials have been collected, and this labor can be secured more cheaply abroad. The iron wire used can be bought for 30 per cent. less in Germany to-day than from any American manufacturer; it can be bought there for less than even in England, for which reason Germany supplies all the iron wire used in ocean-cable building. The advantages of England are less with respect to copper and Gutta-percha, since all the former comes originally from American mines, and the latter is imported free into both the United States and Great Britain. Yet the foreigners have some advantage in the cheaper cost of labor for refining copper, and in more intimate commercial relations with the colonies whence Gutta percha is derived. Finally, the large amount of capital required for building cables can be secured at more favorable rates abroad than in America, and it is only natural that the cables should be bought in the countries supplying the capital. Under all these circumstances no cable-building plants have come into existence in the United States prepared to deal with any other than the short submarine cables required in crossing rivers and other narrow bodies of water for the land telegraph and telephone services. The aggregate of orders of this description, however, is considerable in the course of a year.

RUBBER AS A FACTOR IN SAFETY ON RAILWAYS.

THE railway companies, already among the most important purchasers of mechanical rubber goods in America, are certain not only to remain permanently in this class but also to increase their orders. While millions of feet of rubber hose have been sold to the railways for air brakes, heating, and automatic signaling, it may be said that only a beginning has been made in this direction. But the advantages of these safety appliances have been so well learned by the public that no railway will be permitted very long to remain without them. Indeed, popular sentiment has already been expressed in the act of congress of March 2, 1893, providing that it shall be unlawful after January 1, 1898, for any locomotive or railway car used in interstate commerce to be run without an automatic-brake equipment. Legislation in some states to prohibit the heating of cars by stoves has also had the effect of making the use of rubber appliances obligatory.

It must not be understood, by the way, that the adoption of safety appliances by the railway companies has been due alone to public demands. The history of most roads under intelligent management has been a continual record of improvement of equipment, in respect to the safety and comfort of passengers as well as in increasing the earning capacity. Viewed purely as a matter of business no railway manager would want his trains to be killing people and thereby frightening others away from his road. The fact that legislation has not been necessary to cause the adoption of air-brakes is proved by the equipment with them of nearly 25 per cent. of all the locomotives and cars in the country before the act of congress above mentioned became a law. It must be considered that most American railway companies are yet very poor—if their debts be counted in—and that the purchase of badly-needed equipment may sometimes be simply impossible. The same public clamor that the railways shall spend more in guarding the lives of individuals often has been coupled with legislation to restrict their managers in the matter of charges for services rendered. Such progress as has been made, therefore, in the adoption of safety appliances is both creditable to the railway companies and encouraging to the rubber-manufacturers, who have some part in the equipment of each new service in this line.

To show the importance to the railways of a quick acting brake-service, it may be suggested that the accident at Quincy, Mass., in 1890, where twenty-three passengers were killed, could have been prevented by bringing the train to a stop forty-five feet short of the deadly obstruction, but so sudden a stop under the conditions there was impossible with the old hand brakes. Forty-five feet, by the way, is only a matter of a second when a train is running at thirty miles an hour, and only a half-second when the speed is sixty miles. But safety of passengers and train employés is not the only consideration in favor of the air-brake. By making possible the better control of trains, both passenger and freight, they can be run under a shorter headway than where trains are not so controlled; in other words, more trains can be run over a road in a given time, thus increasing the capacity of the road. Again, some economy is possible in the reduced number of trainmen necessary.

As now equipped for the air-brake service, every railway car needs two feet of rubber hose at each end, or four feet in all, the hose being listed in manufacturers' catalogues at 85 cents to $1 or more per foot. When it is considered that the number of cars in the United States to-day to which the new law relates is more than 1,300,000, and that only one in four of these has been supplied with air-brakes, it will be seen that the cost for rubber for this equipment is to be a big item. Then the number of cars in use increases every year, while the life of the rubber hose is calculated at two years. It is safe to estimate that, by the time all the railways have complied with the act of congress, there will be 1,500,000 cars in use, requiring 6,000,000 feet of rubber hose, and as renewals every two years will be necessary, the average yearly demand will be 3,000,000 feet. The same amount of hose is needed for automatic signaling as for the automatic brakes, and this service is gradually being adopted on freight as well as passenger cars. Hose for car-heating is also supplied in the same lengths, but at nearly double the cost. This, however, is used only on passenger trains.

These figures apply to the United States alone. But the United States can claim less than half the railway mileage of the world, and eventually cars everywhere will need the same amount of rubber equipment that is being placed on American cars, giving a total demand of immense proportions, and compelling a considerable extension of some of the mechanical-goods factories.

No special spurt in the trade in railway hose is anticipated in rubber circles as the result of the compulsory federal law. Already the rate of applying air-brakes is satisfactory, and if it is maintained during the next three years most of the railways will be equipped. The advantage to the roads is so well appreciated that when air-brakes are adopted in new territory the first company to make the change is apt to make the most of the fact by advertising it. Naturally competitors feel obliged to adopt the same improvement, without reference to any law on the subject. It has been suggested, however, that in the event of bad business, such as to cripple the railways financially, the date for enforcing the law of 1893 would probably be postponed. Those who manufacture air-brakes buy the hose needed for the first installation from the rubber-manufacturers. The metal parts of the service may be made to last a long while, however, and when renewal of the rubber is necessary the railways buy the hose direct, attaching it without recourse to the air-brake people. Some of them buy hose cut to 24 inch lengths, while others prefer it in lengths of 50 feet, to be cut up in the railway shops.

RUBBER AND OTHER TOPICS IN BRAZIL.

THEY have been discussing the navigation of the Amazon in the Brazilian congress at Rio de Janeiro, from which it appears that the present facilities are not all that the people want. Senator Francisco Machado, of Pará, said in debate that while Brazil owed much to the Amazon Steam Navigation Co. for having opened so large a part of the Amazon valley to commerce with the rest of the world, yet the complaints against the company from the states most interested could not be overlooked. He attributed the want of progress in many parts of the interior to the absence of needed facilities for steam navigation, for which the rivers were fitted. The trade of the Amazon is growing rapidly, nevertheless. Pará alone shows a five fold increase of exports in the last twenty years, and Amazonas has done even better. And the river trade is bound to go on, for nature has provided a monopoly in Brazil, first of fine India-rubber and secondly of a channel for carrying it to market. The man-made monopoly—the Amazon Steam Navigation Co.—has profited by its opportunities. It has been on the whole a good commercial success. For the first five years, ending with 1877, dividends averaged about 60 per cent. There was then a large falling off, but even now the returns on the capital are good, having averaged 7 per cent. annually since 1887. The earnings for the last four years, expressed in United States currency, after making allowance for the great depreciation of exchange, have been, respectively, $1,457,445; $1,626,195; $1,745,890; and $2,140,375.

Yet the situation is such as to lead a Brazilian to write to THE INDIA RUBBER WORLD: "The navigation company is not well managed. Many private steam enterprises are being started. If an American company could only buy the whole thing up, and carry everything before them, it ought to be the best paying company in the world."

* * *

NEW rubber districts are reported every now and then. The latest is in the neighborhood of Leopoldina, in Goyaz state, where the company having a monopoly of navigation on the river Araguaya have set a lot of rubber-gatherers at work. The "mangabeira" rubber-trees are said to be very plentiful here, and experienced hands from the Amazon country have been employed in the camps. West of this district is Diamantina, in Matto Grosso state, where the rubber industry has lately sprung up, as already related in THE INDIA RUBBER WORLD. East of Goyaz rubber-gathering has received an impetus in the states of Bahia and Minas Geraes, from the introduction of steamers on the upper Sao Francisco and its tributary, the Rio das Velhas. Since the steamers began running, in January last, the exports of India-rubber and other products from this section have increased largely, for freight can now be transported in ten days over the same distance which formerly required a journey of two months. Doubtless a vast area is covered with the mangabeira tree (*Hancornia speciosa*), since all the states here named are at a considerable distance from the point in Sao Paulo at which this tree was first discovered to yield rubber.

This discovery is claimed by S. S. Schindler, a native of New Haven, Conn., who called attention to it in 1884. Before that time the mangabeira tree was esteemed only on account of its fruit, which, he wrote, "possesses a fine aroma, a delicious taste, and makes a preserve which is a great favorite with the Brazilians. This fruit is about the size of a large plum, of a yellowish color, marked with reddish spots or streaks." The tree is of medium size and presents a graceful appearance, something like that of the weeping willow, with drooping branches. It abounds in the most healthful localities, flourishes on sandy soils, and is not confined to the banks of rivers. It is reported to yield a fair quality of milk every month if carefully tapped. By 1889 Bahia's exports of this rubber reached 305,083 pounds, and as much more, it was estimated, had gone southward by the river Parana, reaching the Atlantic below Rio de Janeiro. But all the efforts at collecting this rubber have not proved profitable, as is shown in the case of Maranham, where great excitement prevailed in 1887 over the new source of wealth offered by rubber-gathering. The first year they shipped one ton, the next year 25 tons, then 34 tons, 14 tons, and finally 9 tons, when the people were ready to resume their old occupations. The fact is that mangabeira rubber, as now prepared, is not the most desirable grade in the market.

* * *

PARÁ and some of the other states of Brazil are adopting vigorous measures to secure laborers from Europe and elsewhere. The problem is an old one throughout the Amazon rubber country, and slight success has attended past efforts of the government towards its solution. In the present case the Pará legislature has authorized the governor of the state to contract for 30,000 immigrants.

"That is about as far as the matter will ever get," said Mr. R. F. Sears, the head of the Pará firm of Sears & Co. "The truth is that the Amazon valley is an unhealthy country for people who are not born there, and the conditions of life in the rubber forests are far from inviting to people who are able to make a living anywhere else. The coffee-growing states farther south may reasonably hope for greater success in securing a good class of colonists."

"What do you think of the suggestion, made by a correspondent of THE INDIA RUBBER WORLD, that colored laborers from the United States be introduced into the rubber camps?" Mr. Sears was asked.

"No doubt some of the colored farm hands in the swamp country of Louisiana and South Carolina would be able to stand the climate and to do the work required, but it would be out of the question trying to get them to leave the United States. When I speak of the unhealthfulness of the rubber country," continued Mr. Sears, "I do not include the city of Pará, but some of the imported laborers have been taken up stream two thousand, in some cases three thousand, miles."

* * *

CONDITIONS have been named by the government at Rio for increasing the navigation service on the Amazon and its tributaries, under a new concession, to continue for five years. In addition to the routes from Pará to Manáos and Iquitos and into the various branch rivers, an additional line of steamers is proposed from Pará to the mouth of the river Oyapock, on the Atlantic coast, in the territory now in dispute between Brazil and France. Stops are to be made, on the new route, at the mouths of the rivers Macapá, Bailique, Araguary, and Amapa. Other conditions of the concession are the establishment of a suitable warehouse (*trapiche*) at Manáos within two years and one each at Itacoatira and Piratinim within five years. A farther condition which would be thought strange in many countries is that the minister of agriculture reserves the right to decide, without appeal, any question of difference arising between the government and the concessionaire. The United States consul at Cayenne reports that the rubber-trees of

French Guiana (*Hevea Guyanensis*) are most plentiful along the river Opayock. Balata-trees are still more plentiful in the colony.

* * *

AFFAIRS in Brazil appear to be improving in many respects, and the rubber-producing states are sharing in the improvement. The custom house receipts at Pará during August reached 2,036,021,274 (equal to $1,111,667.61 at par of exchange), the largest sum on record. The custom-house returns at Bahia since January 1 are largely in excess of those for the same months last year. The extension of one of the Bahia railways by 62 kilometers is reported. The London and River Plate Bank, having $4,500,000 paid up capital and $4,250,000 surplus, has established a branch at Pará, having had a branch already at Pernambuco. The new bank at Manáos commenced business on October 11.

A CARRIAGE MANUFACTURER ON RUBBER TIRES

CHANNING N. BRITTON, who has been elected president of the Carriage Builders' National Association, may be considered the pioneer in the rubber-tiring of carriages in the United States. He reports, since his return from the convention at Philadelphia, that an unmistakable tendency exists among carriage-builders to take up the rubber tire, they having been forced to this by the demand for such tires on the part of buyers. Mr. Britton is the largest owner and the active head of the long-established carriage business of Brewster & Co., in New York, but for some time after becoming convinced of the advantages of rubber carriage-tires he worked alone for their adoption, few of his competitors seeming willing to give even serious attention to the suggestion. Now, however, the whole trade has become interested and vehicles of nearly every type are being equipped with rubber tires, of which there are already many styles in the market. THE INDIA RUBBER WORLD, by the way, is in constant receipt of names to be added to its list of carriage-manufacturers who are putting on rubber tires.

CHANNING N. BRITTON.

The history of Mr. Britton's interest in rubber tires is worth recalling. He first saw them in use in 1866, in Berlin, on a coach built for the king of Prussia by Joseph Neuss, the celebrated coach-builder of the city named. Later he received a course of instruction in coach building in the works of Neuss. Meanwhile he was a fellow-student in the university in Berlin with the present Earl of Shrewsbury and Talbot, whose successful introduction of rubber-tired cabs in London is known everywhere. An India exchange of THE INDIA RUBBER WORLD contains a London letter which says: "A very large proportion of our hansom cabs are now fitted with India rubber tires. The comfort of these is so appreciated that no one will select a hansom off the cab-stands without carefully looking for one so fitted." Mr. Britton says that the Shrewsbury cabs number at least 4000. In the course of time, when Mr. Britton had attained his present position as a manufacturer of fine carriages, and his English friend, in spite of his title, had become interested in cabs and tires, the former became a licensee in this country under the latter's patents.

"One reason," says Mr. Britton, "why the India-rubber tire has made greater headway in London than anywhere else, is to be found in the fact of their widespread use on the cabs in that city. Cabs are used to a very great extent, and the whole public soon became acquainted with the increased comfort of riding and with the noiselessness of the vehicles equipped with rubber which were introduced by the Earl of Shrewsbury. Naturally, orders were soon made for these tires for private carriages. In New York, on the contrary, the attention of individuals had to be called to these tires, one at a time. We began with the physicians, one of whom now and then was induced to have his carriage rubber-tired, with the result usually that he was pleased, and ready to recommend rubber to others for its beneficial effects. One physician, who has to drive very much over the streets of this city, said that he could never 'hear himself think' in his carriage until the rubber tires were put on. Then he found himself less subject to headache, and felt less shaken up by his carriage-rides.

"I always have contended that the loosening of carriage tires is due to their elongation by the constant pounding received on the hard streets, but for a long time my ideas were opposed in the trade. Now it has been found that a carriage equipped with rubber is never troubled with loosened tires. The point is that the rubber tire, acting as a buffer, prevents wear and tear of the carriage generally. While we have gathered no accurate statistics, I believe that the saving on this account will more than offset the original cost of rubber tires and their renewal from time to time."

When asked for his opinions respecting the various types of tires, Mr. Britton said: "When I first became interested in this subject there were no pneumatic tires to consider. As for the competing tires at the time, the principal point was in the method of attaching the rubber to the wheel. We selected the one which seemed the best, though there are other good solid tires in the market. The question of the quality of India-rubber caused us much trouble at first. We did not want to import the lengths of rubber if it could be avoided, on account of 40 cents a pound charged at the custom house. Some of the American rubber we bought would peel off and soon need renewal. Some of it was too hard and some too soft. But I made a study of the compounding and mixing of rubber, working in consultation with the superintendents of the rubber-factories,—who naturally wanted to produce a satisfactory article,—until I now believe that as good tires are made in America as in England or anywhere else.

"Pneumatic tires are, first of all, unsightly. Our efforts are constantly aimed in the direction of producing carriages artistic in effect, which affords one reason for satisfaction on the part of the owner of a carriage. Much of this would be lost in a carriage having 3-inch rubber pipes around the wheels. Again, pneumatic-tired carriages are apt to have a swinging or lateral motion which is unpleasant on a long drive and apt to make one seasick. As for the durability of pneumatic tires, due to recent attempts to protect them against puncture, I have not given them enough attention to be able to express an opinion. Very many of these tires are likely to be made, however. While the demand for rubber tires is new, and still in the nature of a 'fad' or 'craze' in some places, no doubt many tires, both solid and pneumatic, will be bought and used where they are unsuited, but it does not seem to me likely that the trade which our firm represent will want pneumatic tires."

It may be mentioned that Mr. Britton's father, John W. Britton, called to order the first convention of the carriage-makers, in New York, in 1872, and was afterwards treasurer and then president of the association.

* * *

RUBBER tires made a good showing in the exhibition of carriages and carriage material in connection with the carriage-manufacturers' convention at Philadelphia. The International Wheel and Tire Co., of Philadelphia, of which Howard M. Du Bois is manager, exhibited wheels equipped with the "Du Bois Standard" rubber cushion tire. Miller Brothers, of Amesbury, showed a new-style Stivers wagon with solid rubber tires. The Boston Rubber Co. sent a handsomely-made buggy, finished with their new rubber tire. Lee J. Aubry, a carriage-manufacturer of New Haven, Conn., included in his exhibit an elegant cabriolet, provided with rubber cushion tires of an English patent. The tires, by the way, formed the exhibit of Alfred J. Walker, of New York city, who represents the English firm in this country. The Dunlop pneumatic tire, fitted to carriage-wheels with ball bearings, appeared in the exhibit of S. N. Brown & Co., of Dayton, Ohio. The Rubber Tire Wheel Co., of Springfield, Ohio, showed the new style of tire illustrated on another page of this paper. The Michigan Wheel Co., at Lansing, showed a pair of hickory sulky-wheels, with ball bearings and pneumatic tires, and Parkhurst & Wilkinson, of Quincy, Ill., were represented by the Webb pneumatic detachable tire for sulky-wheels.

Other rubber carriage parts were also shown in considerable variety. There was a substitute for rubber tires in the shape of a "rubber-cushioned" wheel, the rubber being applied to the ends and at the shoulders of the spokes. This was exhibited by A. McIntosh Williams, of Philadelphia. J. P. & W. H. Emond, of Boston, sent a rubber cushioned turn plate for carriages, and the Boss Lock Nut and Coupling Co., of New York, a rubber-cushioned device called the "Boss" improved shaft-coupling. Spring brake-blocks, with both iron and rubber shoes, were shown by Morgan J. Potter, of Fishkill-on-Hudson, N. Y.

TRADE PUBLICATIONS.

GERMAN asbestos goods are described at length and in an attractive manner in a little volume, which doesn't look like a trade catalogue, sent to us by Ed. Wertheim, Nos. 207–209 Lake street, Chicago. This gentleman is a son of Louis Wertheim, of Frankfort o/Main, whose connection with asbestos manufacture dates from 1867, who first exploited the asbestos deposits of Italy, and who now owns an important interest in the Canadian beds. The products of the Frankfort establishment were on exhibition on a liberal scale at the World's Columbian Exposition, with such satisfactory results in the way of orders that Mr. Wertheim the younger, who was in charge of the display, determined to remain in America and build up a branch house here. This book contains much matter of interest respecting asbestos, including its use with India-rubber.

—A new catalogue and price-list of fire-hose comes from the Boston Belting Co., illustrated with representations of their leading brands, together with hose appliances. A novelty in this direction is the hose-testing pump invented by Mr. Forsyth, the company's general manager, for use in their factory, but now to be placed on the market.

—"The New List and Catalogue of the Granby Rubber Co., Granby, Que.," is devoted to the rubber boots, shoes, and clothing of this firm, embracing a wide variety of products. Owing to the peculiar climatic conditions of portions of Canada, "lumbermen's" goods occupy a prominent place in this catalogue, together with arctics and snow-excluders for old and young of both sexes. "Manitobas" is a name appropriately given to one style of high-cut snow-excluder. At the same time the light, fine shoes manufactured by the Granby company are sufficiently varied in kind to meet every probable requirement. Illustrations of thirty-seven different styles are given. In addition to the standard "Granby" brand, the same company manufacture the "Dominion" or "Beaver brand" shoes, in staple lines, to supply the demand for cheaper goods. The discount from the printed list is uniformly 20@5 per cent. The company's rubber clothing is briefly referred to. A feature of interest in this catalogue is a series of half-tone portraits of the men concerned in making and selling the goods described in the book—first those of S. H. C. Miner, president, and J. H. McKechnie, general manager, of the Granby Rubber Co., followed by the officers of the Ames, Holden Co., Limited, of Montreal, who are selling-agents for Granby goods. Mr. Miner, by the way, is a director in this company.

—An eighteen-page pamphlet with a cover showing a cut of a handsome perforated mat, while in the center is engraved rubber mats and matting is a late publication. Within are cuts, descriptions, and prices of corrugated mats, pyramid matting, and perforated mats in new and attractive styles. It is an exceedingly neat and practical price list, and the cover designs are especially to be commended. Issued by the Manhattan Rubber Mfg. Co., 64 Cortlandt street, New York.

—A neat 16 p. price-list of druggists' sundries, has just been issued by the New England Agency of the Ideal Rubber Co. The articles listed embrace a full line of the staple sundries such as water-bottles, syringes, etc., etc., and in addition are the specialties of the Ideal Co. Published by Chas. T. Wood & Co., 67 Chauncy street, Boston.

—The new 100-page catalogue of the Detroit Rubber Stamp Co. at once gives a suggestion of an extensive stock of goods, which is strengthened by an examination of its contents. An important item of the company's output is metal-bodied rubber type, for which the demand is said to be very large, including good sales for export.

ONE EFFECT OF THE NEW TARIFF LAW.

"UNDER the operation of the new tariff law we expect to get fewer contracts from the government," says the manager of an important concern closely allied to the India-rubber trade. "The McKinley law helped us by striking out of the free list the words 'Articles imported for the use of the United States.' After that there was little use for a foreign competitor to bid on government contracts in our line, for there were duties to pay the same as on private importations. We managed to secure some pretty good contracts under the operation of that law, but the business is likely to go back to the foreigners since the passage of the Wilson—or whatever you may call it—tariff bill. It enumerates in the free list 'Articles imported by the United States,' and no matter how much protection the new law may give us in supplying the regular trade, it gives us none whatever in manufacturing for the government."

A LITTLE RUBBER PATENT THAT HAS PAID.

FOR nearly a dozen years the inventor of a patented rubber-cushioned horseshoe has kept it advertised on the front windows of a little office on upper Broadway, not far from some of the biggest stables in New York.

"It has not had a great sale, for the want of a proper introduction, and yet I have made a living out of it," says the inventor. "Some of the street-railway companies use it for all their lame horses, and that alone has made a good demand. Then I have a good many standing customers, both stablemen and private owners, some of whom use these shoes for their lame horses, and others for all the animals they own. But the influence of the horse-shoers has always been against it. Some of them object to the slight extra trouble in putting on the rubber-cushioned shoe, while others pooh-pooh it because their profits may be slightly greater in putting on shoes not protected by a patent. But there is no doubting the advantage to the horse of the rubber feature."

RANDOM NOTES FROM PARA.

TO THE EDITOR OF THE INDIA RUBBER WORLD: The long-established rubber-shipping firm of A. Berneaud & Co. have ordered built, on the Clyde, three fine steamers, to run in the freight and passenger trade between Pará and the river Purus, where the firm have important rubber interests. The boats are to be known respectively as the *Rio Aquiry*, *Rio Machados*, and *Ciadade do Pará* (city of Pará), and are to have the most modern equipment, including electric lights. The first of the three, the *Rio Aquiry*, left Glasgow for the Amazon on October 9.

The name of a new firm has appeared on the list of rubber-shippers at Manáos—De la Baume la Jeunesse & Co.

I have lately received a good specimen of a Peruvian smoked Indian head, which is something quite rare in these days. The head has been reduced until it is little larger than a lemon, though the hair is 2¼ feet in length. These heads, after treatment by the mysterious art of the Indians, are carried about by the nearest relatives as sacred mementoes of the dead, but sometimes their cupidity gets the better of their affection and the emblems are sold to travelers.

Mr. Frank da Costa, of the firm of La Rocque, Costa & Co., has returned, with his family, from a visit to Europe.

The state of Amazonas has voted a yearly subvention of 240,000 milreis (=$131,040 at par of exchange), for ten years, for a steamer service to the Mediterranean ports as far as Genoa. The steamers are to have a cargo capacity of 3000 tons, and ample passenger accommodation. This seems to be an effort to make good Governor Ribeiro's prophecy that Amazonas will soon be exporting her products direct.

The commercial life of Pará is continually expanding; how rapidly may best be told in a few figures showing the total value of exports through the custom-house here, for different years:

Yearly average, 1874-1879	14,001:991$000
In 1889	24,388:487$501
In 1890	32,317:771$848
In 1891	50,029:212$994
In 1892	59,772:549$196
In 1893	68,055:668$240

In reading Brazilian money, the figures to the left of the colon (:) represent *contos* (thousands of milreis); the remaining figures to the left of the $ mark represent the *milreis* below 1000; while the last three figures to the right represent *reis*. The value of the milreis in United States currency is 54.6 cents at par of exchange, at which rate the last sum mentioned above would equal $37,158,394 86.

Exports from Amazonas have also increased at a rapid rate They amounted to 10,342:107$600 in 1882 and to 39,050:357$222 last year.

Boundary disputes between Brazilian states are perennial. Lately the governor of Pará has been notified that a tax-collector from Matto Grosso has been making a levy on the poor rubber-gatherers on the Sao Manuel, in territory claimed by Pará, and an investigation will be made. The governor of Matto Grosso, by the way, is anxious to have the limits of his state definitely settled, as a step toward opening up the India-rubber industry there, which he thinks might become as important there as it already is in Pará and Amazonas.

GRAO PARÁ.

Pará, Brazil, November 1, 1894.

UNCLE SAM PREFERS GUTTA-PERCHA.

ONCE in a while the government wants a bit of submarine cable laid, and when it does Gutta-percha is always specified as the insulating material. It seems that Uncle Sam's confidence has never been gained by the manufacturers of the different insulating compounds of India-rubber, although their quality has been improved steadily and their durability increased. But there is no risk in buying Gutta-percha of good quality, and Uncle Sam, being a small buyer and having usually a fat pocket book, doesn't mind the extra expense. It is said that the Western Union Telegraph cables under the Hudson river at New York are so often injured through being picked up by the anchors of steamships that the cheaper insulations are used, though otherwise, on account of the permanency of the service, it might be preferable to lay Gutta percha cables.

CONTRABAND WOONSOCKET BOOTS.

A PRESS despatch from San Francisco says: "After inspecting the various brands in the market, Muchia Fuago, purchasing agent of marine supplies for the Japanese navy, purchased and paid for to the Woonsocket Rubber Co. at San Francisco 84 cases of 'Kan't Snag' hip boots and 126 cases of 'Rhode Island' short boots. Desiring to clear the shipment at the custom-house, the collector decided the shipment contraband. Mr. Fuago's only remedy was adopted: the boots were shipped by some one else to a private concern at Yokohama. Thus the fighting Japs will eventually wear the boots manufactured by the Woonsocket Rubber Co."

THE NEW BRUNSWICK TAN.

IT isn't always easy to overcome a prejudice, and the writer fully confesses that to him the tan shoe in leather, particularly in its red shades, has never looked especially beautiful. It will do to be sure for the beach or for the mountains for summer wear where any variety of undress is permissible, but for the evening or for winter wear it simply looks crude and inelegant. The shoe dealers tell me that last season there were fully as many tan shoes sold as black. It would seem that this must be so, for I saw them worn to church, to the theater, and even saw certain youths of the period on their way to call on their best girls with red shoes on. To my eyes they did not appear well dressed. Now this preamble is merely to lead up to the subject of tan rubbers. One who dislikes the tan shoe cannot be expected to be in love with the tan rubber. This was therefore the writer's state of mind when a note came from Mr Sanford, treasurer of the New Brunswick Rubber Co., announcing that he had sent a pair of tan rubbers on, as a sample of the goods they were turning out. The carton came in due time, and when opened disclosed, not a pair of huge red rubbers for masculine wear, but a dainty ladies' shoe of a rich brown tint that caused the feminine portion of our office staff to look expectant and covetous. To this point therefore we are willing to mitigate our tan prejudice: First we allow that a ladies' shoe of the proper tan shade is very attractive, and second that Mr. Sanford has certainly secured the shade.

THE ENGLISH RUBBER MOVEMENT.

STATEMENTS which are condensed herewith show the amount (in pounds) of the crude India-rubber imported into England during the first eight months of 1894 compared with the same period in each of the two preceding years; also the amount of exports of crude rubber, the difference between these amounts representing the net imports in each year:

	1892.	1893.	1894.
Imports	20,074,208	21,033,602	23,018,464
Exports	10,295,264	10,842,160	12,108,432
Net imports	9,778,944	10,191,442	10,910,032

Similarly the movement of crude Gutta percha is shown for the period of eight months (January-August) in each of three years past, in the following compilation:

	1892.	1893.	1894.
Imports	3,507,504	2,871,456	4,249,392
Exports	572,096	629,216	647,024
Net imports	2,935,408	2,242,240	3,602,368

The prices for India-rubber declared to the customs officers by the importers have ranged lower than usual for the first eight months of 1894, the average price being £216 per ton. The average price for the same months in the preceding five years was £230 4s. per ton. The average declared value of rubber imported during July (£184 per ton) was the lowest recorded since March, 1887, during which month the average of declared values was £163 per ton.

JUST WHAT WE LIKE TO HEAR.

"THIS is the biggest, busiest, most hustling fall yet," said Paul Kiene, secretary of the Dubuque Rubber & Belting Co. "We can't get goods enough and orders still come in. And by the way, Mr. Editor, as I don't see you very often, just let me say that THE INDIA RUBBER WORLD is the brightest, cleanest, most interesting trade paper alive. I read every line of it."

INVENTED FOR RUBBER FACTORIES.

IN a certain rubber factory there was a crying need for a simple and yet effective steam trap. The superintendent tried a score or more of different makes and none of them suited. As he is an expert in steam devices, he finally designed and built the trap here shown. It did the work on vulcanizers, presses, radiators, indeed wherever it was put, and his whole factory is now equipped with them. A good thing, however, is apt to be in demand. Hence certain friends, desiring to push it, formed a company and are now marketing the trap, which they have called "La Favorite."

In the cut *A* represents the exhaust or discharge pipe of

radiator, steam coil, or other steam appliance, with exhaust valve *C*, and tees attached to connect trap. *D* is the inlet tube. *F* the condensing reservoir, and *E* the outlet tube. Inlet tube *D* and outlet tube *E* are made with right and left hand thread, so as to be more readily connected to exhaust pipe *A*. La Favorite can be placed in any position, either upright or horizontal, and will work eqnally as well. The directions are simple: After blowing out all condensation from the press or vulcanizer, shut the exhaust valve tight and the trap will do the rest. Manufactured by La Favorite Steam Trap Co., 16 Warren street, New York.

ONE MEXICAN'S GREAT OPPORTUNITY.

POPOCATAPETL, the celebrated volcano in Mexico, is the property of a private individual—General Gaspar Sanchez Ochoa. There are rich stores of sulphur in the crater, and it is reported that the owner is preparing to extract some of this material for marketing, his plan embracing the construction of a tramway to connect the mountain with the Interoceanic railway. A man of such original ideas ought not to stop short of organizing a great joint-stock company to combine the rubber-gathering industry of Mexico with the mining of sulphur, with a view to the manufacture of rubber goods where two of the raw materials are so convenient. Further than this, Mexico abounds in good fibers, some of which are now being utilized in local mills, and the product doubtless would serve excellently for belting and hose. What more does General Ochoa want, in the way of natural advantages, for starting a new field for investment that will mark him as the most original promoter of the age?

A DEATH IN THE RUBBER TRADE.

MR. JOHN HORSFORD, salesman for Roberts Bros., Franklin street, Chicago, died at Marshalltown, Ill., Nov. 14. He was formerly a traveler for the Columbia Rubber Co., of Boston, and later for the Boston Gossamer Co. But little is known of Mr. Horsford further than that he was of Irish birth, that he was a well-known mackintosh salesman, and that he died of gastritis. The sensational article in the Chicago *Daily News* and other papers, concerning his personality, his oddities, and his $7000 salary, were the cruelest kind of nonsense, and were read with amazement and sorrow by his friends.

A RAINY DAY

MAKES YOU
THINK OF .

RUBBERS and UMBRELLA?

WE MAKE RUBBERS
NOT
UMBRELLAS.

RUBBERS

To WADE
WALK
RIDE
IN.

To SIT
STAND
TALK
IN.

For WET
MOIST
DRY
DAYS.

For COLD
MILD
WARM
DAYS.

We Make RUBBERS. Are You a Buyer?

BOSTON RUBBER SHOE COMPANY,

MAKERS,

Because they know how.

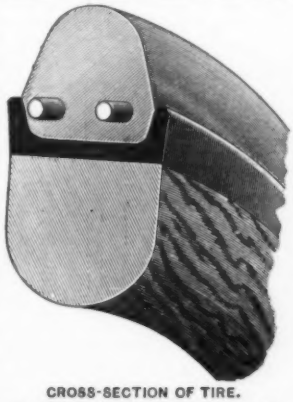
NEW GOODS AND SPECIALTIES.

THE illustration shows what has been well named the "Queen" button boot for ladies wear. The design is elegant and in all respects practical. The shoe while having the appearance of a fine button boot, is in reality a button rubber, for it is made with a rubber sole and the cloth top is waterproofed. At the same time it is lined like a leather shoe and faced with silk. The material used in the

uppers is of fine serge and fancy cloth in black, blue and various other colors to suit the tasteof the wearer. They are very light in weight and low priced for fine goods, certainly making them very desirable for the coming season. Manufactured by the National India Rubber Co., Bristol, R. I.

A RUBBER CARRIAGE-TIRE THAT STAYS ON.

ONE drawback common to all the solid rubber vehicle-tires invented hitherto is their liability to pull out of the steel channel by which they are held to the wheel-rim. It seems that no amount of compression of a substance so elastic as India-rubber will prevent a tire made of it from being wrenched from the confining steel should the protruding section of the tire be caught fast in a crevice in the road. The result of such an accident is as unpleasant as the sudden collapse of a pneumatic tire. Another complaint against this class of tires is that the quality of elasticity is retained only by so much of the rubber as projects beyond the channel, and in some specimens two-thirds of the rubber is held in compression within the grip of the steel. Still another point made is



CROSS-SECTION OF TIRE.

that the rubber thus held in a state of tension is less adapted to resist wear, but that, on the contrary, it will "scale" and crack where a piece of rubber uncompressed would not be affected. The engraving herewith represents a new solid rubber tire which is the result of an attempt to meet all the objections just outlined. It shows a section (1) of the rubber, (2) of the steel rim, and (3) of the wooden felly, omitting only the bolts by which the steel rim is attached to the wood. But instead of the rim flanges converging, to grasp the rubber, it will be noticed that the channel is broadest outwardly, leaving the rubber wholly without compression except such as comes from contact with the road. The remaining feature of the tire, and that which constitutes its chief novelty, is the presence of two wires, running longitudinally through the rubber, forming circles of such diameter that they cannot slip over the edges of the steel rim. Thus, in addition to a tire which will stay on the wheel, a form has been adopted which makes available all the elasticity possessed by the rubber, while the absence of tension gives the rubber the utmost durability. Tires of this design are in use varying in width of the rubber from ¾ inch to 1½ inches. Manufactured by the Rubber Tire Wheel Co, Springfield, Ohio, with branch offices in Chicago and at No. 1784 Broadway, New York.

THE I. C. PNEUMATIC TIRE VALVE.

THE important point about the valve here shown is contained in the molded bulb which is sprung on the threaded shank, and screwed into the end of valve stem by means of the cap. The rubber bulb admits air easily from the pump and checks any return pressure, as the bulb is forced against the sides of the smooth hole in the stem, and only allowed to escape when the deflating pin on the cap is used, while the dust cap, screwed down on the end of the stem, makes it doubly secure against any leakage. It will readily be seen that the rubber bulb in this valve is not pinched or destroyed in any way, but acts as an automatic check, positive and safe, a new principle which is now being applied to water faucets, siphon bottles, and wherever an automatic closing valve is used. It is the invention of J. F. Ives, Manager of the Tire Department of the Mechanical Rubber Co., Cleveland, where the valve has been successfully used the past two years in their tires and by the Lozier Mf'g. Co. The valve is patented both in this country and abroad, thoroughly covering the principle, and is now made for air tires, with a diameter and thread connection in common use 9-32″ diam. 28 thread. The universal thread, recently adopted, is also put in the internal portion of the valve, allowing the core of either the inside or outside pump connection. The larger illustration shows the I. C. valve made up with the new valve-base that the makers have just put upon the market. Manufactured by the Mechanical Rubber Co., Cleveland, Ohio.

PNEUMATIC TIRE VALVE.

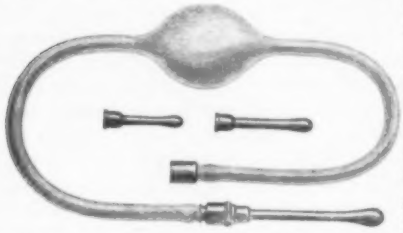
AN IMITATION OF LEATHER.

WHAT is known as Moroccoline is a new and most successful imitation of all the finer grades of upholstery leather. It is made of rubber, but by a recent process is so handled that it takes

any of the richer shades of the primary colors, and while its cost is less than leather it will outlast it. It is not affected by heat or cold, nor by moisture. Manufactured by the Evans Artificial Leather Co., Boston, Mass.

THE EMPRESS SYRINGE.

THE bulb syringe ordinarily is gotten up with bulb and tubing differently made, sometimes of different compounds and varying cures. For some purposes these differences are doubtless an advantage, but for others they are not. The syringe where tubes and bulb are not only made from the same stock, but are turned out of the same mold, after having undergone exactly the same amount of vulcanization, certainly inspires the belief that if one part is rightly done the rest is likely to be satisfactory. This style of syringe is not new, nor is it easy to make, but it has many friends. The Empress is of this type and is fitted with three hard rubber pipes and has hard rubber fittings. Manufactured by Whitall, Tatum & Co., New York.

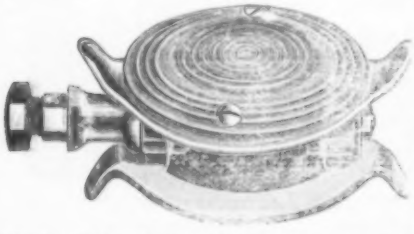


TIPS ON GAS TUBING.

THERE lives in the city of Providence a worthy gentleman surnamed Caldwell who is the inventor and patentee of elastic tips as applied to gas tubing. It seems that there are others in the trade who use rubber tips ignoring the existence of his letters patent and paying him neither royalty nor attention. As a consequence a circular to the flexible tubing trade is going the rounds which says in substance: We are now pursuing and shall continue to pursue, the makers of flexible gas tubing having tips which infringe upon our patents; but we should be sorry to be compelled to prosecute, as infringers, any dealers who have purchased infringing tubing under the impression that they are buying the genuine tubing having tips which we have the sole right to make, and our customers the sole and exclusive right to sell. These goods are manufactured by the American Tubing and Webbing Co., Providence, R. I.

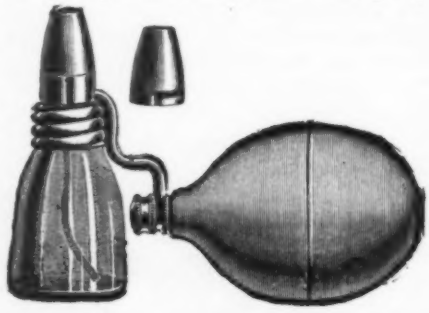
THE LITTLE GEM RUBBER PEDAL.

SOME time ago it was claimed that the limit had been reached in the variety of bicycle pedals and right on top of that statement came the very practical and attractive style here illustrated. The rubber part of it while most important is in plain sight and needs no further comment than the statement that it is made of a compound perfectly adapted for long wear. Of the pedal in its metal parts it may be well to say that its frame is made of pressed steel warranted not to break. Its bearings are detachable, perfectly dirt and dust proof, and made from hardened tool steel and will last for years. Its bearing connection enables the balls to continually revolve in oil, which makes them last forever. They have a ball retaining device, which prevents the balls from falling out of the bearings when the axle is removed. A large number of these pedals have been used these past two seasons, users giving them the highest praise. Manufactured by the Warwick & Stockton Cycle Co., Newark, N. J.



THE NEW "VASOL" ATOMIZER.

THE atomizer shown in the accompanying illustration will be recognized as one put upon the market some time ago by a leading New England house. It has however one feature that is new this season, and that is deemed of sufficient value to make it the subject of a patent. The metal nasal tube through which the atomized spray is sent, is detachable instead of being a part of the cap. This makes it far easier to cleanse, or to repair in case any part gets out of order. Beyond this it has a screw neck vial, metal screw cap and tubes, and it is easily taken apart for filling or cleansing. It is adapted for atomizing all ointments or oils either warm or cold. Manufactured by Codman & Shurtleff, No. 13 Tremont street, Boston, Mass.



THE "VULCAN" RUBBER BOOTS.

A NEW feature in Woonsocket boots is a leather innersole which is vulcanized into the boot. The especial advantages claimed for it are that it makes the boot more durable, keeps it from cracking, and when the rubber outersole is worn out allows of a new one being attached to it. These soles are very light, are easy for the feet as they neither draw nor sweat them. The Vulcan is especially recommended as a fireman's boot as it guards against nails entering the feet through the bottom of the boots. Manufactured by the Woonsocket Rubber Co., Providence, R. I.

A PNEUMATIC TIRED CYCLE CAB.

SEVERAL weeks ago the cycle hansom made its appearance in London. The occupant of the vehicle had the appearance of being a foreigner, but in his movements he seemed to know the city well. His vehicle was a handsome body on three pneumatic tire wheels, propelled by two lackeys, one in front and one behind. The front man, of course, steered, but both helped the propulsion, and they pedaled away over the rough pavement at a pace of nearly eight miles an hour. The gentleman was making business calls, and his flunkeys were therefore in ordinary dress, or what these gentry designate as morning clothes. Possibly he makes social calls in his hansom with flunkeys in livery. Others of these vehicles have since been noticed in the street, and it is learned that a large manufactory

in the suburbs has been started to rush them on the market. The illustration accompanying this is kindly furnished us by the *Scientific American*.

THE GOODSELL PACKING.

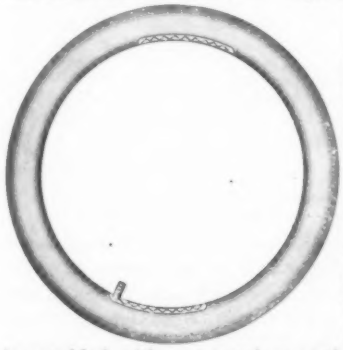
THIS packing, known as the Goodsell, has the further name of the Dollar packing, certainly as pleasant a style of nomenclature as one could wish. The packing is designed for pumps, for piston rods, etc., and consists of a combination of braided flax and woven duck, the whole being supported by a rubber cushion placed behind the wearing surface. The manufacturers

CROSS SECTION

claim this manner of grouping the materials of which it is made is the best for the purpose, and by far the cheapest in the end. Thus the flax acting as a reservoir for the oil and moisture, is supported by a firmer material on either side, while both are kept in contact with the rod by the regulating gland. Made in coils 15 feet long, in regular sizes from ⅜ inches to 1¼ inches. Manufactured by the Goodsell Packing Co., 20 W. Lake street, Chicago, Ills.

THE FLEXIFORT PNEUMATIC TIRE.

A TUBULAR tire lining, woven in a circle, would long ago have been adopted had it only possessed the constrictive qualities of the lining made from bias cut canvas. That one lack, however, has been overcome in the method of weaving used by the makers of the Flexifort. It possesses the constrictive quality in a marked degree and tightly grips the rim when inflated. It is light, seamless, and so woven that all the strands sustain an equal tension. It is perfectly uniform in size throughout, and is not subjected to a molding process while undergoing vulcanization. The fabric is made of Sea Island cotton and the air tubes of fine Pará rubber. The tire



is provided with two openings so that the air tube may be removed one half at a time. These tires are made in four weights, A, B, C, and D, varying from 1½ to 3 pounds a pair. The manufacturers are noted for good work and perfect reliability so that the statements contained in their 1895 announcement should have weight with wheelmen. Manufactured by the Mechanical Fabric Co., Providence, R. I.

PNEUMATIC OR AIR CUSHION MOUNTS.

THE ordinary "flexible" stamp is unsatisfactory in that it is rarely flexible. For this reason they do poor work and the blame falls upon no style in particular, but upon the whole rubber stamp family. The air-cushion has really overcome the defects and objections met with in the ordinary stamp, and they cost but a trifle more. The cushions are made just elastic enough to insure, with ordinary usage, a perfect impression upon any surface, either uneven or yielding. There are no pores to fill up with ink and dirt, or compartments to puncture; and they will not lose shape or resiliency. With regard to the other features of the stamp: They are skillfully made of the best material and are designed not only to look well but work well. The handles are shaped to fit the hand and rack; have a nickeled ferule; are finely enameled and firmly attached to the plates by screws.

The nickeled metal plates have a true surface and will not bend or break. The tops are relieved by neat intaglio designs, showing front of stamp, and numbers for sizes—the figures before hyphen indicating the width in quarters of an inch and those after, the length. Manufactured by the R. H. Smith Co., Springfield, Mass.

THE INVERNESS WITH GOLF CAPE.

A GARMENT that is certainly designed to suit the most fastidious is that shown in the accompanying illustration. It is fitted with the fashionable golf cape and hood, both of which are detachable. This is an advantage when one appreciates what a stylish wrap the golf cape makes when used alone. The garment has a fine woven lining, made from the latest style of imported plaids. It is elegantly designed, carefully made and is acknowleged to be a very "nobby" garment. Manufactured by the American Rubber Co., Boston, Mass.

INVERNESS WITH GOLF CAPE.

THE HOLDFAST RUBBER.

THERE have been a variety of devices for keeping rubbers on by means of attachments at the heel. Some of these have been fearfully and wonderfully made, and so cumbrous and unsightly that no one would wear them. A few have been neat and effective, and of these is the "holdfast." It is simply a ridge molded into the "counter" of the rubber shoe and running in a half circle around it, just a trifle above the heel. When the foot enters the rubber, the leather heel presses this down as it passes it, but when once by the ridge springs into place and holds the leather heel just where it should be. In addition to its value as a holder on of rubbers in mud or slush it is valuable in that it keeps the shoe from moving back and forth in the rubber and thus reduces the wear. The attachment does not add to the cost appreciably, and as it is wholly out of sight does not detract from the looks of the rubber. Manufactured by the Boston Rubber Shoe Co., Boston, Mass.

HEARD AND SEEN IN THE TRADE.

IT is worth walking out of one's way to see the fine photograph of Charles A. Dana in a certain window on Broadway—so few people ever get a closer view of the *Sun's* able editor. But he doesn't need to show himself in public to make his influence felt as the champion fool-killer of our time, and the advocate of whatever is most worthy in the constant procession of new ideas. In keeping with its sane views of things in general is the *Sun's* encouragement of every healthful sport, and its recent editorial on the bicycle tournament was as apt to have been from the "chief" as the neighboring paragraphs puncturing some political windbag. At any rate, the *Sun* believes in the bicycle and rightfully gives the pneumatic rubber tire credit for making it great.

* * *

HOW the pneumatic tire shall be kept above suspicion, in spite of the prevailing hot contest for orders, is a question whhic may call for a special Dana on the bicycling press. There is some limit to the elasticity of India rubber; for instance, it ceases to be elastic when it isn't there! And this is what will be charged against the pneumatic tire by the time its price is cut down a few more points. Only yesterday a man declared that no old rubber shoes from the junk dealers made such poor scrap as some pneumatic tires he had seen returned under guarantees. When the cheapening of rubber car-springs reached a certain point, railway managers concluded that steel was good enough for them, and the makers of the elastic kind were left with ample leisure to go fishing. But the tire business is different in that nothing but India-rubber will serve, and if prices fall too low to permit of the use of good material, prices will have to be raised.

* * *

IN the coming demoralization of the bicycle trade the tire-makers cannot put all the blame upon the other fellows. They began cutting prices as early as anybody else, and will be the last to recover from any excesses in this direction. But the tire-men have trouble enough beside, in the matter of guarantees. As for the man who first introduced this system, it were better for the trade to have bought the Samoan islands, and maintained him there in princely style, than that he should ever have been allowed to engage in the business. So long as a tire is guaranteed against poor material or bad workmanship, of which the bicyclist or the wheel-maker shall be the sole judge, the tire-maker will have to fight hard for his rights, and that is where the trade is to-day. The only way out of this ditch is to make a test-case of every tire returned, until it is settled what a guarantee should rightfully cover.

* * *

TWENTY per cent. off of bicycle prices at one clip is pretty deep cutting, and if all the manufacturers can make money at the new figures, why weren't they millionaires before? Doubtless the big fortunes in the business up to date are few. There's a lot of money invested in plant, but it couldn't be got out if the business should stop short. Then all the cost of plant should be added to the cost of wheels already built, in making up a balance-sheet for the whole trade. Expenses of advertising in a million ways must also be debited on this account. Then everybody knows that not so many bicycles have ever been built as are claimed on the credit side. Evidently the size of profits hitherto depends on how the bookkeeping is done. Whether the trade is ready to turn out its best wheels at the new figures will be proved only by next season's cycling. The pioneer in the late price-cutting, says one observer, can make money at the new figure if his big plant is kept busy, and the program has been to set a pace in prices that will keep competitors—especially new ones—at a respectful distance.

* * *

ALL watches are not offered at the same figure, and there are cheap editions of books and *editions de luxe*. Then why should rubber tires seek a common price, and that dangerously low? A good tire is worth more money than it costs to make a good tire, and all bicyclists are not such fools that they cannot see it. With only one price, one tire is as bad as another, and the manufacturer who offers an extra good thing will find people doubting it. But with prices gaged by the quality of the tires, bicycle-makers would begin to catalogue their machines at so much, with extras—say $10, or $15, or $20—for different grades of tires, to suit the purchaser. To suggest how all this may be brought about might seem too much like offering advice.

* * *

HOW many bicycles are made nowadays? A member of the trade says that no one man knows. There seems to have come in with the bicycle a new mental disorder, which attacks chiefly those in the manufacturing trade and affects the accuracy of their statements about business. A victim may be a man whose fishing stories need no salt, but he will look you in the eye and tell you about having taken before lunch an order for 40,000 wheels, or tires, as if that were an every-day occurrence. Then is the business really growing? Undoubtedly. No man with eyes and ears, who goes about at all, can fail to see bicycles now where there were none before, or to hear men enthusiastic about bicycles who once would sooner have robbed a bank and gone to an asylum on a plea of temporary insanity. But the *American Bicyclist* has made a careful prediction of the bicycle output for 1895, with comparisons with some former years, which are at least interesting:

	Number of Factories.	Product for 1895.
New England	24	106,000
New Jersey, Pennsylvania, Maryland	15	51,000
New York	25	66,000
Ohio, Indiana, Michigan	35	90,500
Illinois, Wisconsin, Missouri	27	144,000
Total	126	457,500
Total, 1884	6	10,000
Total, 1890	17	40,000

This means a round million tires for new wheels, besides which the same paper estimates that 100,000 extra tires will be needed for refitting old wheels. By the way, it is asserted that, at a low estimate, 10 per cent. of the total production of tires are returned under guarantees.

* * *

AT least one man in this town, if he had been the United States Rubber Co., wouldn't have offered the 5 per-cent. discount on shoes last April. He thinks that in the end the sales will not be one whit larger than under the old system, so that the company have only smaller profits to show as the result. The only difference he sees is that the factories were busier toward the end of summer than they might have been, which will be offset by their being less busy than usual some time this winter. Yes, he sees some disturbances in the trade growing out of the discount. It has served as an entering wedge which threatens to split the stone wall of uniform prices adopted by

the manufacturers. Dealers who, otherwise, would have paid full prices without a murmur, now, although the time limit has been passed, insist on having the same discount that some of their competitors enjoyed during the summer, and if they cannot get it from one jobber, they go on in search of another, who may make the discount rather than miss a sale. Another evil which this observer notes is that the 5-per-cent. discount tempted some dealers to buy too heavily, or too early in the year for their trade, so that they are unable to meet payments now due, all of which is more or less demoralizing. What the United States Rubber Co. think of their experiment, it will be easier to say when they have announced their prices and terms for the new season. THE MAN ABOUT TOWN.

THE WOONSOCKET RUBBER COMPANY SUED.

MR. MOSES W. WHITNEY, of Bristol, R. I., has just brought suit against the Woonsocket Rubber Co., for infringement of patent rights. The suit is before Judge LeBaron B. Colt of the circuit court at Providence. Benjamin M. Bosworth and W. R. Perry of Bristol, are counsel for the plaintiff.

The patents upon which Mr. Whitney bases his claims for damages, are one granted June 3, 1884, numbered 299,890, for an improvement in boot heels, and one granted March 9, 1886, numbered 337,467 for method and apparatus for forming bottoms of rubber boots and shoes.

Quoting from the first of these patents: "This invention has reference to the heels of rubber boots; and it consists of molding the heel with projecting flanges which are secured to the sole and counter by cementation."

In the two claims the same idea is brought out but they are so worded that the thought of the inventor which appears to be of a flange fashioned like a standing collar is brought out more clearly. It reads: . . . "of a heel provided with a rearward or upward integral extending flange as constructed to extend over the edge of the sole and lap on to the edge of the counter" and in the second claim, . . . "extending upward around the rear of the heel."

The second invention covers a method and apparatus for forming soles for rubber boots and shoes. Consists in "forming the smooth sole, the outer or top sole, and the heel simultaneously out of the same piece of rubber." The claims which are three in number are practically covered by the following: "A rubber boot or shoe having the complete bottom, consisting of sole, heel and tap sole, and a marginal flap, all of said bottom formed in one piece."

NEW YORK HABERDASHERS AND MACKINTOSHES.

I WAS surprised in my recent peregrinations to note how many of our city haberdashers are handling water-proof clothing. They tell me, that is, those who are confidential, that the market for mackintoshes of the better class is an expanding one, and that there is at the present prices a good profit in handling those articles of apparel. Everybody nowadays is shouting out the advice to keep dry. The doctor solemnly warns you to keep dry, the patent-medicine man pamphlets you to keep dry, and Dr. Parkhurst intends to see that you do—that is, on Sundays. Therefore by all means buy a mackintosh, and to guard against the famishing effects of the latter gentleman's impending reforms, have one with a pocket large enough to conceal a commodious growler.—*The Haberdasher.*

THE TRADING IN RUBBER STOCKS.

DURING the past month unusual activity prevailed in the trading in stocks of the United States Rubber Co. on the New York Stock Exchange. There was a "boom" in stocks generally during the few days following the November elections, and the opportunity doubtless was availed of by stockholders in the United States Rubber Co., as well as in other corporations, to change their investments or to realize some ready money—there having been no such opportunity for the past two years. There has been no such change as has been reported in the daily press in the charter of the United States Rubber Co. as to provide for quarterly instead of semi-annual preference dividends. No decision has yet been reached with reference to the date for declaring a dividend on the common stock.

Stock Exchange operations were:

DATES.	COMMON.			PREFERRED.		
	Shares.	High.	Low.	Shares.	High.	Low.
November 1.....	320	41	40¼	455	95	94¾
November 2.....	200	41¼	40¾	.....	.....	.....
November 3.....	200	40¾	40¾	100	95¼	95¼
November 5.....	100	41	41	100	95¼	95¼
November 7.....	600	41¼	40¾	.....	.....	.....
November 8.....	.....	.....	.....	.....	.....	.....
November 9.....	1840	42⅛	41¼	605	95⅞	95
November 10.....	1515	44½	43	300	96	96
November 12.....	2682	45	43⅛	880	96½	96
November 13.....	1000	44⅝	43¾	200	96½	96¼
November 14	1530	44	43	818	96¾	95⅞
November 15.....	3565	43	40½	1010	95½	95
November 16.....	1600	42	41½	17	95½	95
November 17.....	150	41¼	41¼	25	95¾	95¾
November 19.....	1612	42	41¼	300	95¼	95⅛
November 20.....	1050	41	40¼	700	95½	95
November 21.....	250	41	40⅞	.....	.....	.....
November 22.....	300	41	40½	.....	.....	.....
November 23.....	150	41	41	.....	.....	.....
November 24.....	100	41	41	.....	.....	.....
November 26.....	300	41¼	41	100	96	96
November 27.....	.....	.....	.....	100	96	96
November 28.....	125	41⅜	41⅜	3	96½	96½
November 30.....	5	41⅜	41½	420	96¼	95¾
For the month.....	19,194	45	40¼	6133	96¾	94¾

VARIOUS KINDS OF VEGETABLE MILK.

DR. SPRUCE, the renowned South American traveler, mentions a tree, a member of the dogbane family, the juice of which is used as milk. On the bark being wounded the milk flows abundantly and is of the consistency of cow's milk, of the purest white and sweet to the taste. The Indian mode of taking it is to apply the mouth directly to the wound and thus receive the milk as it flows. Dr. Spruce says he has often partaken of it without experiencing any ill effects.

In Guiana the natives employ the milk from a tree belonging to the same family as the last named; in the vernacular it is known as hyahya, and to botanists as Tabernæmontana utilis (so named after Jacobus Theodorus Tabernæmontanus, a German physician and botanist). The milk has the same flavor as sweet cow's milk, but is rather sticky, on account of its containing some caoutchouc.

In Pará a lofty tree, belonging to the star-apple family, attaining a height of one hundred feet, is used in a similar manner to the others mentioned. Incisions are made in the bark, and the milky juice flows out copiously about the consistence of thick cream, and if it were not for its taste, which is somewhat peculiar, could hardly be distinguished from it.—*Chambers' Journal.*

TRAINS ON THE KONGO RAILWAY.

TRAINS are running over the first section of the Kongo railway—a distance of twenty-five miles, from Matadi to Kenge. This much has been accomplished after five years of hard work and the expenditure of $3,672,055. The total proposed length of the line is 93 miles; the total distance over which track has been laid is 37 miles; and the earthwork has been laid for another six miles. Extraordinary difficulties have been met in the work of construction, but they have been met so far in a way that lends hope, to those most interested, of the ultimate completion of the road. Then we may really have the great extension of trade in rubber from middle Africa which Henry M. Stanley held out as one of the chief inducements for building the road. The progress made on the railway certainly has given a stimulus to coffee-planting along its route.

INDIA-RUBBER INDUSTRY IN GERMANY.

THE United Rubber-Goods Factories of Harburg and Vienna (formerly Menier—J. N. Reithoffer) report an unsatisfactory result for their twenty-second business year. The first obstacle to a profitable business named in the report for the year is the steady increase in the amount of taxes and "social-political tributes" with which the firm are charged. These expenses, amounting in the year 1890 to 122,954 marks, had advanced in 1894 to 217,777 marks. In other words, the tax-list has been greater this year by 94,823 marks than in 1890. It is next pointed out that the cost of crude India-rubber has been unusually high during the year. The manufacture of shoes was seriously interfered with, at the factories in both Germany and Austria, by long-continued strikes. At the establishment in Vienna the effect of the strikes was to raise the cost of manufacturing shoes to a point which rendered their export unprofitable. The remarkably slight fall of snow last winter lessened the home demand for rubber shoes in the earlier part of the business year, and, to make matters worse, some new factories are mentioned as having engaged in the production of shoes, with the effect of glutting the market and lowering prices. The export of rubber shoes to eastern Asia suffered also on account of the continued depreciation of silver there and from the breaking out of the plague in Hongkong and Canton. The South American trade was interfered with by political disturbances in Brazil and elsewhere, and by the unstable prices of exchange. The firm felt obliged during the year to expend 170,577 marks on the building and machinery account, to complete extensions to the plant already begun. The reserve fund of the company is 585,019 marks in excess of the charges against it. The net profit for the business year was 1,089,974 marks (=$272,498).

At the last general meeting of the Leipsig Rubber Factory (formerly Julius Marx, Heine & Co.) it was decided to increase the capital to 1,200,000 marks (=$300,000), on account of the necessity for procuring new machinery and for extending the works. The new shares will be accepted by the National Bank of Germany at the rate of 106 per cent., and will draw interest from October 1. Albert Wenzel, of Wenzel & Co., bankers, and Richard Wiener, of Wiener, Levy & Co. (Berlin), were added to the board of directors.

The balance-sheet of the Stock Company for the Manufacture of Technical Rubber Goods (C. Schwanitz & Co., Berlin) for the third quarter of 1894 shows a diminution in profits of 24.336 marks as compared with the same period last year. This result is due in large part to the reduced trade in brewers' supplies.

A stock company under the firm name of Phil. Penin Rubber-Goods Factory has been formed at Leipzig-Plagwitz, with a capital of 750,000 marks. Its purpose is to take over and continue the rubber-manufacturing business now conducted under the name of Phil. Penin at Leipzig-Plagwitz and Markranstädt. The assets which become the property of the stock company are valued at 1,672,002 marks, while the liabilities amount to 676,506 marks.

Carl Fischer, who is described as having wide experience in the trade and ample capital, has established at No. 13 Poststrasse, Leipzig, a warehouse for India-rubber and Gutta-percha goods, belting, and asbestos.

Moritz Becker, of Berlin, has withdrawn from the directory of the United Berlin-Frankfort Rubber Factories, after several years' service, and has been succeeded by Emil Spannagel, of the same city.

NEW PUBLICATIONS.

THE MANUFACTURE OF TYPES, STAMPS, AND PRINTING-PLATES from Caoutchouc and Glue-Mass; also the Utilization of Cork and Cork-Waste. By August Stephen. Sixty-five illustrations. [Chem. Tech. Bibl., Vol. 131.] Vienna: A Hartleben Price, 4 marks

OUR Dresden contemporary, *Die Gummi-Zeitung*, says of this new book: "Even if the above-named book furnishes little that is new to the professional in the manufacture of stamps and printing-plates, it is of great value to those desirous of obtaining the knowledge to produce these articles, as also of the principal ingredients required in their manufacture. It contains all the fundamental knowledge necessary for the manufacture of these articles. The principal contents of this work refer to the rubber stamp, especial attention being paid to the movable types for dates, alphabets, figures, etc. Of great interest is the knowledge it conveys in regard to the only suitable colors for printing from these stamps, and the necessary formulæ for making the same, as usually the premature wearing out of these stamps is ascribed to the use of injurious inks, with the ingredients of which not even the manufacturers can at all times be acquainted. This book is to be specially recommended for the purpose stated."

RUBBER PLANTING IN COSTA RICA.

THE government of Costa Rica, which has always exhibited much prudence and far-sightedness, realizing that the natural supply of rubber cannot last forever, some years ago attempted to stimulate the cultivation of the tree by offering prizes for the best artificial forests. The first prize of $5000 was given to Dr. Valverde, who has a plantation near Port Limon, Costa Rica, of between 25,000 and 30,000 trees, which will be ready for tapping next year. The second prize was taken by Mr. Minor C. Keith, a Brooklyn gentleman who manages the principal railroad of the country. He planted about 25,000 trees, and they are all in a flourishing condition. It is believed that the success of these gentlemen will stimulate others to follow their example, and result in adding another industry to the resources of Costa Rica. The planting was done from seed, in a banana grove, the shade of the latter trees protecting the plants from the heat of the sun until they became independent of their assistance.—*Engineering* (London).

RUBBER-TIRED bicycles put away for the winter should be kept in a dark place, according to R. J. Mecredy, the Irish bicyclist. He says that light, damp, and extreme cold are injurious, and that about 60° F. is the best temperature.

TRADE AND PERSONAL NOTES.

ONE of the most curious mat orders ever given out was one lately signed by Hagenback the animal trainer. It was for a rubber mat to cover the track around which one of the trick ponies trots with a lion on its back. The circular track is 40 feet in diameter, and the mat was therefore made in 6 sections each four feet wide, the whole weighing 1000 lbs. As the horse trots from left to right the sections were fitted with a little overlap at each end to prevent stumbling. The order was filled by the Manhattan Rubber Manufacturing Co., 64 Cortland street, New York.

—The Wellman Sole Cutting Machine has been adopted by a rubber factory for use in cutting out parts of rubber balls.

—The only rubber factory in the world so far as we know that is run by natural gas is that of the Indiana Insulated Wire Co., at Jonesboro, Indiana.

—Mr. Edward F. Bragg, Treasurer of the Automatic Rubber Mixer Co., has just returned from a tour among the rubber factories in the interior. On his way home he came through the Canadas visiting the large plants in Toronto and Montreal.

—The Tyer Rubber Co. (Boston) are putting up a very fine line of atomizers of which the glass parts are of the finest imported ware. They are very handsomely decorated; the tubes are of heavy gold plate and the rubber bulbs are covered with silk nets. They range in price from $6.00 to $50 00 a dozen.

—Mr. B. T. Morrison, Treasurer of the Reading Rubber Works, has sold his place in North Andover, Mass., and is now residing in Boston.

—The Philips Insulated Wire Co. (Pawtucket R. I.) are making a new process insulated wire. Briefly described the wire is covered with raw cotton fiber in tape form, and then the insulating material is taken into the fiber by absoption.

—The Columbia Rubber Works have installed the Colvin Interior System of telephones at their Reade street ware rooms, New York.

—The London Rubber Co., Ashtabula, Ohio, have started up their works on full time.

—Mr. Frank A. Magowan, of Trenton, came out of his suit with the Alpaugh interest with flying colors He purchased the entire stock represented for $40,000 cash.

—C. J. Bailey (Boston) has built up such a business that he is wondering how he can secure more room, and still keep the location that has proved to be so advantageous.

—The Hoffman & Billings Co. of Milwaukee have secured the exhibit of asbestos and rubber goods shown by Louis Wertheim of Frankfort at the World's Fair. They use it as a standing advertisement, as it fills two large windows and attracts a deal of attention.

—Paul Kiene, secretary of the Dubuque Rubber and Belting Co., of Dubuque, Iowa, recently called at the office of THE INDIA RUBBER WORLD and reported business as good with them.

—Mr. C. J. Butler, Secretary & Manager of the Indiana Insulated Wire Co., was formerly with the Diamond Match Co., in Akron, Ohio. This fact is interesting when one recollects that the air is full of rumors concerning other officials of the Match Company and a new rubber factory in Akron.

—The American Ball Nozzle Co. is the name of a new corporation under the laws of New York, with $200,000 capital, to manufacture nozzles for all kinds of hose. The directors are Frank M. Clute, Henry Herrold, W. H. MacNabb, and others: of New York city.

—The Gutta-Percha & Rubber Mfg. Co. have moved their Boston store from 177 Devonshire street to 52 Pearl street. They have about twice as much room in their new quarters and are nearer their largest customers.

—Mr. Geo. H. Hood, of the Boston Rubber Co. has fitted a buggy and a trap with rubber tires for his private use. The tires are attached by the patent Hood process.

—Mr. N. Lincoln Greene, of the Boston Rubber Co., takes the Eastern territory formerly covered by Wm. H. Corner, Jr.

—Mr. Eben Paine, sales-agent for the American Rubber Co., has just returned from a successful business trip through the West and Northwest. While there he took a run up into the wilds, going almost to Manitoba, and had some duck shooting. His description of the flocks of ducks, and of the rare sport that they enjoyed are next thing to having been one of that fortunate party.

—Mr. William H. Corner, Jr., has gone to Denver, Col., to take charge of that territory in the interest of the Boston Rubber Co. While making that city his headquarters he will go as far as California, visiting all of the trade on the Pacific slope. Mr. Corner makes this change because the Eastern climate is too vigorous for him. His many friends will join us in wishing him success, and recovered health and strength.

—The Columbia Rubber Co. (St. Louis) have removed from 707 Market street to 519 Locust street, where they have a fine three-story building splendidly adapted for a general rubber business. They expect to carry a full line of boots, shoes, clothing, etc.

—Mr. Wm. H. Whitehead, of the Lake Shore Rubber Works (Erie, Pa.), has just returned from a trip to Trenton where he visited his relatives who are also rubber manufacturers.

—A four-wheeled buggy, with ball-bearing axles, hickory wheels, and rubber pneumatic or cushion tires, is manufactured at Lansing, Mich., by a firm which has been making sulky-wheels extensively.

—The Gibbs Cushioned Horse-shoe Co. is the name of a new corporation at Indianapolis, Ind., formed to manufacture a cushioned shoe invented by H. H. Gibbs, who is the president of the company. This shoe, after having been tested for three years past, is now being put upon the market in a vigorous way.

—The Diamond Rubber Co. (Akron, Ohio) have met with such success in marketing their bicycle-tires that they talk of enlarging their factory space.

—The oiled-clothing business of the American Rubber Co, has been transferred to N. S. York, formerly their superintendent in this line of manufacture, who is forming a company to continue the business at Rockport, Mass.

—The Western Linoleum Co. (Akron, Ohio) distributed some handsome souvenirs at the Philadelphia convention of carriage-manufacturers, in the shape of a rubber pocket-comb.

—The city council of Quebec, Que., have voted an annual grant of $2500, for five years, to the Globe India-Rubber Manufacturing Co., of Manchester, England, to induce them to establish a branch factory in the former city. M. Frankenburg, owner of the business, visited Quebec recently to arrange for the new enterprise.

—The suit of William Wallace against the Metropolitan Rubber Co., on account of alleged injuries received on June 12 by the caving in of an embankment at their factory at Wallingford, has been settled out of court.

—George R. Cook, of the Empire Rubber Manufacturing Co. (Trenton, N. J.), became an associate member of the Carriage-Builders' National Association at its recent convention in Philadelphia.

—The 30-per-cent. duty on bicycles will not keep American wheels out of Canada altogether. E. C. Stearns & Co. (Syracuse, N. Y.) and other manufacturers are planning to evade the customs tax by building branch works in the Dominion.

—The Riverside Rubber Works (Belleville, N. J.) are putting in a new 60-inch 3-roll calender, 2 vulcanizers 16×5 feet in dimension and 2 new mixing mills. All of the machinery is of Farrel make. Since going into druggists' sundries the Riverside have been very busy, and are now running up to nine o'clock every night.

—Mr. Geo. B. Widner, manager of the Pacific Rubber Works, has just returned from a flying trip west.

—The contemplated widening of College place will take off twenty-five feet of the front from the building owned by the Mattson Rubber Co. The change will necessitate a month's shut-down, which they will utilize in putting in new machinery.

—The American Ruberoid & Rubber Mfg. Co., 312 East 95th street, New York, have closed their factory and sold their machinery.

—Mr. J. F. Ives, manager of the tire department of the Cleveland factory of the Mechanical Rubber Co., has been spending some little time in New York and vicinity.

—The Dixon Crucible Co. (Jersey City) started up their new rubber plant on December 1. It is used solely to make tips for pencils, and various special forms of erasers of their own design.

—John H. Parker (Boston), maker of the "arctic" sock, is running his factory in Berlin, Mass., far into the night and still is hundreds of cases behind his orders.

—Mr. George Pellinger, superintendent of the Goodrich Hard Rubber Co., called at the office of THE INDIA RUBBER WORLD recently while on a visit to New York.

—Dunlop tires will be fitted hereafter to the bicycles of E. C. Stearns & Co. (Syracuse, N. Y.) and to the "New Mail" bicycles, manufactured by William Read & Sons (Boston) as their standard detachable-tire equipment. These make five important bicycle firms with whom the American Dunlop Tire Co. have made recent "deals" of this sort.

—The Eastern Rubber Manufacturing Co. (Trenton, N. J.), it is reported, are supplying India-rubber stoppers for bottled beverages at the rate of two carloads a month.

—The Trenton Rubber Co., so far from being in financial straits—as some people imagined on hearing of the recent application for a receiver—are reported to have paid dividends last year amounting to 32 per cent. on their capital stock.

—The Lambertville Rubber Co. have been very busy, but were obliged to stop work for a few days in November on account of an accident to the machinery.

—Harry E. Converse, assistant general manager of the Boston Rubber Shoe Co., is quoted by a Boston journal as saying that the company have large orders ahead, and that with ordinary winter and spring weather all hands will be kept at work.

—The Dubuque (Iowa) Rubber and Belting Co. have secured a contract for supplying East Dubuque with 1000 feet of India-rubber hose, two hand hose carts, and other fire-department supplies.

—The American Hard Fiber Co. (Newark, Del.) have a new factory, 50 × 226 feet, designed and built by the Berlin Iron Bridge Co. (East Berlin, Conn.) The roof is of steel, covered with the Berlin company's patent anti-condensation corrugated iron roof-covering.

—Water for use in the factories of the Boston Rubber Shoe Co. is to be drawn hereafter from the new wells near the Malden hospital. These wells, driven through solid rock to a depth of more than 200 feet, are said to furnish water that is softer and better suited to the manufacture of rubber than that used hitherto.

—W. E. Hemenover has become local agent in Chicago for the National India Rubber Co., and will carry a full line of their shoes and mackintoshes at his salesrooms, Nos. 200–202 Monroe street.

—*Garden and Forest*, pleading for better treatment of Central Park, in New York, says that there ought to be 15,000 or 20,000 feet more of rubber hose to keep it properly watered in the dry season. What a chance that would make for a live hose-selling bee, with room for all the champion salesmen in the business!

—This has been an exceptionally busy year for the Lycoming Rubber Co. (Williamsport, Pa.) The entire force of 360 operatives has been employed ten hours a day for some time past.

—A recent report from Franklin, Mass., stated that there was no competent laboring man in that town idle from necessity. The works of the Boston Rubber Co. were running with an increased force and on full time.

—The Perfection Rubber, one of the successful inventions of C. J. Bailey, is having a boom. In one week the store at 22 Boylston street, Boston, sold at retail four hundred pairs. Mr. Bailey is now ordering them in 100 case lots.

—Mr. Walter M. Farwell, New England agent for the Empire Rubber Co., was recently married to Miss Grace E. Moore, daughter of L. Foster Moore, Esq., of Roxbury, Mass.

—Mr. A. L. Foote, superintendent of the Toronto Rubber Shoe Co., has been hard at work ever since accepting his position across the line. As a result he has now a modern factory and is able to turn out goods as economically and with as fine a finish as any.

—The first installment of rubber shoes made by the Providence Rubber Shoe Co. are now being shown in Boston and vicinity. They are stamped Union Rubber Shoe Co. and present a very fair appearance. The samples seen by the writer were of high cut rubbers, with opera toes. The shoes are to be marketed by Mr. Walter M. Farwell, N. E. agent for the Empire Rubber Co., who has an office with W. R. McKay & Co., on Devonshire street, Boston.

—Frank E. Hall (Boston) has formed a stock company to push the sales of his rubber and elastic rim guard. Numbers of prominent rubber men are interested in the company.

—Said one of the most successful rubber shoe men: "Any one starting a rubber shoe factory to-day must make up their minds to bury $500,000 besides what they have in their plant. Such experience is inevitable, and the history of all the big companies will bear me out in the statement."

—Prest. H. D. Warren, of the Gutta-percha & Rubber M'f'g Co., of Toronto, calls our attention to a recent invention. He says: "The latest thing that I have heard of in Gutta-percha is an invention patented, I believe, by a Toronto engineer, and is a golf club with the head made partly of Gutta-percha. It is called a cleek, and is supposed to have wonderful driving powers. As the game of golf is developing rapidly in the states, this may be of interest."

—Walter S. Ballou, of the Woonsocket Rubber Co., while on a business trip in Michigan, enjoyed the experience, new to him, of a sleigh-ride two weeks before Thanksgiving.

—The India-rubber trade is certain of representation in congress for another two years, at least, through the reëlection last month of the Hon. L. D. Apsley, president of the Apsley Rubber Co., from the Fourth Massachusetts district.

—A feature of the tan shoe brought out by the New Brunswick Rubber Co. that should not go unnoticed is the varnish. As a rule shoes of this shade have been given a dull finish for the reason that it was next to impossible to get the right effect with a varnish. The New Brunswick people however solved the problem, and as a result their shoes are much improved in appearance, wear better, keep their new look longer, and are far more easily cleaned.

—The offerings of Kongo rubber at the Antwerp auctions on two days recently aggregated 87,445 pounds. One lot of Kassai (river) red sold at the equivalent of 62½ cents per pound, Other lots brought prices ranging from 40 to 51 cents.

—Mr. E. H. Paine, selling-agent of the American Rubber Co., on November 20, attended the sixty-third anniversary of the wedding of his parents, who live at Stoughton, Mass. His father's age is eighty-seven years, and that of his mother eighty-four.

—It is reported that the daily output of the Marvel Rubber Co. is more than 2000 pairs of shoes, with prospects of this number being doubled before the season ends.

—The Canfield Rubber Co. are stirring up the ladies all over the land by the following prize offers. For the largest number of envelopes that once contained dress-shields, and that represent actual sales, a sealskin sacque or $250 in gold. For the second largest, a black silk dress or $100 in gold. For the third. a baby's outfit, a chatelaine watch, or $50 in gold.

—The Indiana Insulated Wire Co., of Jonesboro, Ind., have begun the manufacture of bicycle tires.

—A good order for rubbers has been received from Madagascar by the Woonsocket Rubber Co. A singular fact about the order is that it should have been placed with the Chicago agency, rather than with a store in one of the seaboard cities.

—Old Bolivian rubber has been quoted in London lately at 3*s*., while the highest price mentioned for fine Pará on the same date was 2*s*. 11⅛*d*.

—A record of the first snow-storm in each season, beginning with 1874, has been kept by H. H. Shepard, general selling-agent of the National India Rubber Co. He has put down November 5 on the record for 1894, which is a trifle earlier than the average or mean time for the first snow for twenty-one years past,—namely, November 8. The actual dates have ranged between October 15 and December 3.

—The Philip Carey Manufacturing Co., whose asbestos plant in Cincinnati was burned last month, advise THE INDIA RUBBER WORLD that they have secured a 13-acre tract of land in the suburb of Lockland, Ohio, and will rebuild there on a large scale. It is understood that the village is to pay a cash bonus to induce the company to locate there, together with free water power for five years. The company date from 1873 and use asbestos in several ways, one specialty being their asbestos-magnesia steam-pipe covering.

—Mr. Rudolph A. Loewenthal, of the firm of Loewenthal & Morganstern, has been elected president of the Mutual Fire Insurance Co., of New York, an institution in which he had been for some time vice-president and for twelve years a trustee. This company, though not organized until 1882, is said to rank as eighth in size among American fire companies, and it numbers among its policy-holders some of the largest rubber-manufacturers. Mr. Loewenthal became connected with the rubber trade nineteen years ago, through Charles Loewenthal & Co., and in 1878 helped to organize the firm of Loewenthal & Morganstern, who now have offices at No. 271 Broadway, New York.

—The marriage is announced of Mr. Joseph D. Connolly, president of the Ohio Rubber Co., at Cleveland, and Miss Maude M. Willard, of the same city. The date of the wedding was November 7.

—The published report that A. G. Spalding & Co. had contracted to become general selling-agents for the "Skacycle"—a sort of pneumatic roller-skate—is denied by that firm at Nos. 126-130 Nassau street, New York. They say that the "skacycle" is too expensive an article to try to sell in the present depressed condition of the roller-skate craze.

—The capital of the Rubber Tire Wheel Co. (Springfield, Ohio) has been increased from $16,000 to $30,000.

—The new building of the Gutta-percha and Rubber Manufacturing Co., Limited, of Toronto, mentioned in this paper last month, is to contain a new set of large belt-presses, and other new machinery for the manufacture of belting, hose, and other mechanical goods.

—Mr. Arthur Miller, of the rubber boot and shoe firm of Sutter & Miller, Philadelphia, returned recently from a trip to Europe, during which he saw something of the trade in London and Paris.

—Brewster & Co., the Broadway firm of carriage-builders, in New York, report that 25 per cent. of the town carriages now in their store have rubber tires, whereas for many years they did not consider it necessary to keep more than one such vehicle in stock. Their consumption of rubber for tires has amounted sometimes to $1800 a month.

—A rubber journal may properly chronicle Colonel Albert A. Pope's offer to give the city of Hartford, Conn., $100,000 worth of land for a public park, since he is a rubber manufacturer as well as cycle builder. The offer is conditioned on the city's making certain improvements at an early date.

—The Hartford Rubber Works Co. report that they have entered quite largely into the manufacture of pneumatic tires for carriages, and that several extensive manufacturers of carriages have used their tires satisfactorily. Their "Wizard" single-tube tire has had a good demand in the sulky trade, but they have adopted another type for carriages.

—Mr. Thomas A. Bell, formerly of the Star Rubber Co., Trenton, was a recent visitor to New York.

—Mr. Geo. H. Ashworth, the mechanical engineer of the B. F. Goodrich Rubber Co., has accepted a position with the Hamilton-Corliss Engine Co., of Hamilton, Ohio.

—Mr. Frederick H. George, Vice-President of the W. S. Mott Co., of Minneapolis, has just returned to Minnesota after a brief business visit to Boston and New York.

—Respecting the chicle market, the Seeger & Guernsey Co. (New York) report: "The price is now 24 cents per pound. The decline is attributed to lack of demand from the manufacturers and the somewhat freer arrival of new chicle, which importers do not feel disposed to store, although from present indications the crop will be below the average."

—Boston exported during November 19,569 pairs of rubber boots and shoes, of the declared value of $10,570.

—The annual meeting of stockholders of the Boston Belting Co. was held at the company's offices in Boston on December 3.

—The factory of the L. Candee & Co. (New Haven) was closed on November 24, after having been run steadily since April, giving employment to 1700 hands.

—In one week the news comes of the presentation by the Hon. E. S. Converse of a new park to the city of Malden, Mass., and of $4000 to the Home for Aged Couples in Boston.

—Mr. Chauncey Warren has resigned the vice-presidency of the Canfield Rubber Co. and the management of the large real-estate interests of the president, Mr. Ratcliffe Hicks. It is reported that the vacancy in the rubber company will be filled

by Mr. F. N. Benham, cashier of the Bridgeport (Conn.) National Bank.

—A very interesting decision relative to the well-known "Rainbow Packing" manufactured by the Peerless Rubber Mfg. Co. may be seen by turning to their advertisement in this issue.

—For seventeen years past the Caldwell Hose Strap has been made from one kind of wire and by the same manufacturer. Millions have been sold and have given such good satisfaction that although the patent has expired the sales continue undiminished in volume. It is manufactured by C. S. Knowles. 7 Arch street, Boston.

—At the recent Carriage Makers' Convention held in Philadelphia, the Cable Rubber Co. had a fine exhibit of carriage cloth, drivers' coats and carriage springs. Mr. Wheeler Cable, Wm. J. Cable and J. Francis Hayward were there to represent the company. The Boston Rubber Co. did not exhibit carriage cloth this time but showed a rubber carriage tire attached by the process covered by the Hood patents for fastening rubber to iron. Mr. F. C. Hood, secretary of the company and Mr. Burleigh were present. Mr. Wm. H. Corner, who is generally there, was not yet well enough to be present, much to the regret of his many friends. President Harral, of the Fairfield Rubber Co., and his brother Major Harral, had a fine exhibit of colored upholstery goods, Harral's patent cloth, and other carriage specialties in rubber.—The Evans Artificial Leather Co. had a beautiful display of colored carriage and upholstery goods. Mr. Walter N. Dole and Mr. Arthur Moore were there to explain their merits. The company also showed the goods of the Standard Oil Cloth Co. (Taunton, Mass.), for which they are agents.—The L. C. Chase Co. showed the carriage cloth manufactured by the Reading Rubber Works, their exhibit being in the care of Mr. Bishop.—There were also representatives of the National India Rubber Co., Bristol, L. Joy & Co., Newark, Edwin Heath & Co., Newark, and the Empire Rubber Co., of Trenton, all of whom make carriage cloth.

RUBBER IN OPERA AND SCHOOL SEATS.

THE best-equipped theaters have seats which close automatically with the rising of the audience, greatly facilitating the emptying of the house. The frames of these chairs being of iron, it is hard to appreciate what the noise would be from the closing of so many seats at once, but for the fact that, hidden in the joints at each side of every seat is a small buffer of India-rubber, against which the iron works as the chair is opened or closed. This feature is embraced in the general patent on the chairs manufactured by the Grand Rapids School Furniture Co., who apply the same construction to school furniture. It is stated at their New York office that they sell 150,000 folding seats a year having these rubber buffers, or 300,000 a year of the latter.

"NEW METHOD" GARDEN HOSE.

FOR some time past experiments have been going on in a large rubber factory looking toward the making of garden hose on the same lines that they have in the past made fire hose. That is, a light product of great strength and long life. This has been accomplished, and is now offered to the trade under the name of "New Method" hose. It is made four and five ply, of a special high grade duck, and warranted to stand 500 pounds pressure. Manufactured by the New Jersey Car Spring and Rubber Co., Jersey City, N. J.

QUICK RECOVERY FROM A FIRE.

ON the morning of Saturday, November 10, fire broke out in the extensive establishment of Nathaniel Fisher & Co., jobbers in boots, shoes, and rubbers, at No. 146 Duane street, New York. Considerable damage was done, including the loss of the stock of rubbers, in the upper part of the building. Before the day was ended the firm had leased the seven-story building, Nos. 160–162 Duane street, and on Monday they were installed in business at the new stand. They are there only temporarily, however, hoping to find their former store repaired and ready for their return not later than February. The firm have never suffered from fire before, and they have made few removals since the late Nathaniel Fisher entered the business in Pearl street in 1838. Mr. Nathaniel C. Fisher informs THE INDIA RUBBER WORLD that the trade in combination boots—to which they give special attention—has been very good for the season.

CHANGE IN A PARA RUBBER FIRM.

A CHANGE has taken place among the rubber firms at Pará, owing to the death of W. B. Norton, who for many years was the representative in that city of the New York Commercial Co. and George A. Alden & Co. On June 30, it having been decided by Mr. Norton's physicians that the state of his health was such as to preclude hope of his recovery, his business was disposed of to Adelbert H. Alden. The old firm name was retained until the liquidation of the affairs could be accomplished, since which business has been conducted under Mr. Alden's name. The new firm continues the business of exporting and importing at the same place—No. 32 Boulevard da Republica, Pará. Mr. Alden is represented in Pará by Mr. F. W. Dunbar, formerly of Boston, later in the offices of the New York Commercial Co., and finally assistant to Mr. Norton, taking charge of the latter's business when ill health forced him to leave Pará. Mr. Norton died at Walpole, Mass., on September 22.

IF THERE WERE NO INDIA-RUBBER.

IN our own day it really seems as if we couldn't possibly get on without India-rubber and Gutta-percha. Though both are of comparatively recent introduction, the number of purposes to which they are applied is so immense that our civilization without them would at least be very different from the form in which we actually know it. To lump a few miscellaneous examples in a single paragraph—without those two, submarine cables would be almost impossible, telegraphy would assume many unlike modifications, goloshes would not exist, waterproofs and mackintoshes would be a beautiful dream, and a rubberless world a hideous reality. Elastic, in the sense which ladies use the word, for tying hats or making garters, would never have been evolved; tobacco pouches would still be of silk or leather, our combs would be of horn, and our buttons, paper knives, penholders and pipes much dearer than at present.

As for machinery, where would it be without India-rubber cinctures and tubes and cups and valves and buffers? Where would engineering be without the endless minute applications of the elastic gum? Where would surgery be without the innumerable devices, the syringes and squirts, the belts and bandages, of which India-rubber forms the sole, and, as it seems to us now, indispensable basis? Fancy putting out fires without

the invaluable hose; fancy whirring manufactories without the inevitable gearing. The bicyclist would miss his pneumatic tires; the artist would miss his ever handy eraser.

When we go to the dentist, which is always in itself a delightful excursion, a happy hour is made happier for us by the India rubber sheet with which he dexterously contrives to check undue loquacity. When we go to the gymnasium, half the apparatus we employ is based upon it. And what would life be at the present day without India-rubber hot-water bottles?—*Longman's Magazine.*

INDIA-RUBBER MISTLETOE.

"I HAVE here," began the energetic man as he bundled into the young lawyer's office, "the greatest invention of the age."

It was cases that the lawyer wanted, not inventions, and he said something rather rude; but the energetic man proved to be a philosopher, and merely smiled.

"I call it," pursued the visitor, "the eternal kisser, because there is simply no end to the kisses it bestows. It is this." He hauled out a spray of mistletoe covered with white berries. This interested the young lawyer, who raised his eyebrows inquiringly.

"Mistletoe," proclaimed the agent, "is very scarce this year, and a bunch containing a score of berries would bankrupt a poor man. Now this great invention brings happiness within reach of all. Tradition permits you a kiss for each and every berry, you know. You hold this spray above your beloved's head—so. You bend—so—and kiss her. Then you grab a berry—so—and pull it—presto, it flies back again in place. The leaves and berries are India-rubber, sir, and— Two, did you say? Fifty cents. Thank you, sir. Good day."—*From the "Editor's Drawer," Harper's Magazine.*

THE Bureau of the American Republics at Washington has issued a bulletin [No. 64] containing much information of interest respecting the resources and progress of Ecuador, but only scant mention is made of India-rubber. On page 59 it is stated: "India-rubber is gathered abundantly in the forests of Ecuador. It was exported in 1889 to the value of $262,207.50. India-rubber plantations have been started in several localities, but principally in the province of Guayaquil." It might have been added that the rubber output has fallen off greatly within twenty years, for the port of Guayaquil alone used to ship more than 1,000,000 pounds a year of good rubber.

WATERPROOF VELVET.

THE Hartford *Times* describes a new waterproofing process for velvets and velveteens, which it claims will make possible the substitution of a handsome velvet cloak as a rain shedder, in place of a mackintosh. It says:

One of the cleverest and most useful inventions of the age is the "Millerain" process, by which materials of all kinds are rendered rain and damp proof. Now that velvets and velveteens are increasingly fashionable, it is delightful to know that we can buy them so successfully treated by this process that they are as absolutely impervious to wet as the most reliable mackintosh. The uses to which such ideal materials can be put are endless, but for children's hats, coats, suits and frocks, as well as for grown persons' wear, velveteen that will not spot and possesses the quality of resisting damp without any of the unpleasantly unhealthy attributes so often attached to waterproof goods is a gift for which it is impossible to be too grateful.

INDIA-RUBBER SCRAP.

WE trust that the man who established the pneumatic tire has made an inexhaustible fortune, for he has contributed a boon to his fellow citizens beyond their power to reward adequately in any other way. Great is the bicycle, and the pneumatic tire is what so makes it.—*New York Sun.*

* * *

THE promoters of rubber culture in India are teaching the world a wonderful lesson in patience, if they are doing no other good. Now come the government botanists of Nilgiris, after nursing their Ceará and *Castilloa elastica* trees until they look ready for tapping, with the report that their own work at extracting the rubber has been unsuccessful, and they ask the government to employ an expert rubber tapper, to prove whether the poor results have been due to the trees or to the methods employed heretofore.

* * *

AN invention lately patented at Washington is described as a pneumatic door-strip, patterned after a bicycle-tire, and inflated automatically on closing the door, by means of a cylinder and piston air-compressor. When the door is opened the tube is deflated, but it forms a tight joint when the door is shut. It should prevent drafts and conversation passing, and being a cushion, it adapts itself to the shrinkage of the door. In a house supplied with this device, says *Farm Machinery*, a listener must come back to the old time keyhole as a source of stolen information.

REVIEW OF THE RUBBER MARKET.

GOOD receipts, fair demand, and a shade of advance in prices are the features of the crude rubber market in New York for the month. In addition to the Pará arrivals noted elsewhere two other steamers are now afloat from that port for New York. The general improvement in business has been reflected in the rubber manufacturing trade. The rubber-shoe trade has been encouraged by the stormy weather which has prevailed in sections during the month. The bicycle trade gives promise of a large consumption of rubber for the season just beginning. The mechanical goods trades in general are also in a satisfactory condition. Everything points, therefore, to a good consumption of crude gum for some time to come. It may be added that these conditions for the most part apply also to Europe, where the consumption of rubber this year has been larger than last.

The latest quotations in the New York market are:

Pará, fine, new t a.....	69@71½	Sierra Leone.....	23@40
Pará, fine, old.....	73@75	Benguela.....	49@49
Pará, coarse, new t a..	47@56	Kongo Ball.....	37@40
Pará, coarse, old.....		Cameroon Ball.....	35@36
Caucho (Peruvian) strip	47@48	Flake, Ord. and Lump....	24@25
Caucho (Peruvian) ball.	53@54	Accra Flake.....	14@15
Mangabeira, sheet.....	35@39	Liberian Flake.....	24@25
Esmeralda, sausage....	51@52	Primest Pinky Madr.....	59@61
Guayaquil, strip.....	33@40	Madagascar, black.....	42@44
Nicaragua, scrap..	48@50	Borneo.....	26@45
Nicaragua, sheet.....	46@47	Gutta-percha, fine grade..	1.30
Thimbles.....	36@37	Gutta-percha, medium...	1.00
Tongues.....	34@36	Gutta-percha, hard white.	85

PRICES FOR NOVEMBER (ISLAND RUBBER).

	1894. Fine.	1894. Coarse.	1893. Fine.	1893. Coarse.	1892. Fine.	1892. Coarse.
First	69	47	65	45	67	45
Highest	70	48	69	49	68	47
Lowest	68½	47	65	45	67	45
Last	69	48	68	48	67	46½

The statistical position of Pará rubber in New York and elsewhere is as follows, the figures expressing tons:

	Fine and medium.	Coarse.	Total.
Stock, October 31, 1894	840	24	864
Arrivals, November	829	268	1097
Aggregating	1669	292	1961
Deliveries, November	755	265	1020
Stock, November 30	914	27	941
Stock in England, November 30			660
Deliveries in England, November			625
Pará receipts, November			2090
Stock in Pará, November 30			255
World's supply, November 30 [Excluding caucho.]			3330

Respecting the financial situation Messrs. Simpson & Beers, brokers in crude India-rubber and commercial paper (New York), advise as follows:

"Rates for prime rubber paper were virtually unchanged during November, until the occurrence of the Government bond issue, when they advanced from ½ to 1 per cent., and we now quote first-class receivables at 4@4½ per cent. and prime single-name notes at 5@5½ per cent. These rates will probably be maintained until the middle of January, when the money market will feel the result of the large quarterly and semi-annual interest disbursements. This means a lowering of rates to the former rulings, unless a greatly increased business should offset this."

IMPORTS FROM PARA.

THE imports in detail of rubber direct from Pará at the port of New York, since our last report, have been as follows, expressed in pounds:

November 13.—By the steamer *Sardinian Prince*, from Pará:

	Fine.	Medium.	Coarse.	Caucho.	Total.
New York Commercial Co.	168,500	15,000	47,400	2,000	232,900
Lawrence, Johnson & Co.	7,000	300	1,800	.....	9,100
Boston Rubber Shoe Co.	8,900	3,000	1,800	.....	13,700
Joseph Banigan	3,500	300	29,400	.....	33,200
Shipton Green	9,100	700	1,800	.....	11,600
Reimers & Meyer	85,700	17,000	29,000	11,000	142,700
Total	282,700	36,300	110,300	13,000	443,200

November 15.—By the steamer *Parnense*, from Pará:

	Fine.	Medium.	Coarse.	Caucho.	Total.
New York Commercial Co.	201,700	28,200	62,400	2,000	294,300
Reimers & Meyer	158,000	22,100	50,400	.....	230,500
P. Lima	1,100	...	2,000	.....	3,100
Lawrence, Johnson & Co.	.....	.....	15,600	.....	15,600
Joseph Banigan	10,900	1,000	25,200	500	37,600
Boston Rubber Shoe Co.	10,100	1,000	.....	.....	11,100
Otto G. Mayer & Co.	44,200	5,000	15,000	.....	64,200
Total	426,000	57,300	170,600	2,500	656,400

November Imports from Pará	1,692,700
October Imports	1,566,200
September Imports	1,386,000
August Imports	964,500
July Imports	645,300
June Imports	1,591,300
May Imports	926,300
April Imports	2,566,868
March Imports	2,177,400
February Imports	2,309,402
January Imports	3,750,000

OTHER NEW YORK ARRIVALS.

BELOW will be found in detail the imports at New York, during November, 1894, of India-rubber from Mexico, Central America, and South America, other than Pará grades; also, arrivals at New York of African and East Indian sorts:

CENTRALS.

	POUNDS.
Nov. 1.—By the *Finance*=Colon:	
J. Aparicio	10,155
New York Commercial Co.	9,700
J. M. Ceballos & Co.	7,400
A. Santos & Co.	3,300
R. F. Cornwall	1,500
Munoz & Espriella	233
Ellinger Bros.	750
F. J. Meyer	161
C. R. Flint & Co.	5,300
Bock & Co.	2,380
Total	40,869
Nov. 3.—By the *Carib Prince*=Bolivar:	
J. Agostini (Angostura rubber)	6,000
Nov. 4.—By the *Orizaba*=Tuxpan:	
H. Marquardt & Co.	450
Louis Monjo & Co.	150
Total	600
Nov. 6.—By the *Louisiana*=New Orleans:	
W. H. Crossman	21,400
—— Robinson	3,500
Earle Brothers	700
To Order	3,600
Total	29,200
Nov. 9.—By the *Washington*=Greytown:	
Andreas & Co (Nicaragua)	3,700
Munoz & Espriella (Nicaragua)	900
U. S. Commercial Crop Advancing Co.	400
Total	5,000
Nov. 10.—By the *Creole Prince*=Port S. aln:	
J. Wupperman (Angostura)	300
Nov. 11.—By the *Afghan Prince*=Bahia:	
New York Commercial Co.	12,000
Nov. 11.—By the *Victoria*=Mexican ports:	
H. Marquardt & Co.	600
F. Probst & Co.	150
Graham, Hinkley & Co. (ex *Fumuri*)	150
Total	900
Nov. 13.—By the *Hudson*=New Orleans:	
W. H. Crossman (Nicaragua)	5,600
Earle Brothers	3,600
To Order	3,700
Total	12,900
Nov. 11.—By the *Alliance*=Colon:	
A. Santos & Co.	6,503
G. Amsinck & Co	3,335
New York Commercial Co.	3,000
Hirzel, Feltman & Co.	1,753
Bock & Co	1 638
J. M. Ceballos & Co.	9,700
Rolden & Van Sickle	800
W. Loaiza & Co	600
C. R. Flint & Co.	4,900
J. Mecke	296
Piza, Nephews & Co.	1,433
D. A. De Lima & Co	974
Total	34,900
Nov. 12.—By the *City of Para*=Colon:	
Andreas & Co.	4,014
C. R. Flint & Co	1,650
F. Probst & Co.	440
Munoz & Espriella	329
Hoadley & Co	335
A. P. Strout	3,895
Lamper & Co	1,200
Eggers & Heinlein	254
Jacob Batz	353
W. R. Grace & Co.	315
Total	12,785
Nov. 18.—By the *Regulus*=Cabo a Gracias:	
Eggers & Heinlein (Nicaragua)	4,500
Nov. 19.—By the *Seneca*=Mexican ports:	
Graham, Hinkley & Co	2,100
H. Marquardt & Co. (from Tuxpan)	100
Total	2,200
Nov. 20.—By the *Alene*=Cartagena:	
A. Santos & Co.	8,800
C. R. Flint & Co.	2,000
D. A. De Lima & Co	2,200
Kuhardt & Co.	400
G. Amsinck & Co.	200
A. N. Rotholz	300
Total	13,900
Nov. 20.—By the *Prins Willem, IV*=Paramaribo:	
Theband Brothers (Angostura)	66,300
Nov. 22.—By the *Advance*=Panama:	
A. Santos & Co	2,500
A. N. Rotholz	687
Bock & Co.	1,110
Total	4,297
Nov. 20.—By the *Knickerbocker*=New Orleans:	
A. N. Rotholz (Nicaragua)	600
Nov. 22.—By the *El Dorado*=New Orleans:	
Earle Brothers (Nicaragua)	1,000
To Order	3,000
Total	4,000
Nov. 24.—By the *Habana*=Mexican ports:	
H. Marquardt & Co.	1,150
Louis Monjo & Co.	100
Samuel Hermanos	100
Total	1,350
Nov. 26.—By the *Louisiana*=New Orleans:	
Earle Brothers	3,000
To Order	4,500
Total	7,500
Total Centrals for November	254,101
Total for October	283,606
Total for September	243,535
Total for August	204,342
Total for July	176,747
Total for June	212,186
Total for May	174,905